“If you’re looking for an education with both power and meaning, Manhattan College offers a rigorous, respected and personal experience in a small, diverse learning community — shaped by ethics, faith and values — all on an intimate campus in the capital city of the world.”

Brother Thomas Scanlan, F.S.C.
Manhattan College Parkway
Riverdale, New York 10471
(718) 862-8000
TTY: (718) 862-7885

Please refer to the web site, www.manhattan.edu for revisions and updated information.

While the announcements presented in the following pages apply as of the date of publication, the College reserves the right to make such changes as circumstances require.
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# Undergraduate Academic Calendar: Day and Evening

## 2008 Fall Semester

<table>
<thead>
<tr>
<th>Month</th>
<th>Date</th>
<th>Day</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>August</td>
<td>25</td>
<td>Monday</td>
<td>Classes Begin</td>
</tr>
<tr>
<td></td>
<td>29</td>
<td>Friday</td>
<td>Late Registration &amp; Add/Drop Ends</td>
</tr>
<tr>
<td>September</td>
<td>01</td>
<td>Monday</td>
<td>Labor Day – No Classes</td>
</tr>
<tr>
<td></td>
<td>17</td>
<td>Wednesday</td>
<td>Senate Meeting</td>
</tr>
<tr>
<td></td>
<td>25</td>
<td>Thursday</td>
<td>Annual La Sallian Convocation</td>
</tr>
<tr>
<td>October</td>
<td>13</td>
<td>Monday</td>
<td>Columbus Day Holiday – No Classes</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>Tuesday</td>
<td>Monday Schedule</td>
</tr>
<tr>
<td></td>
<td>17</td>
<td>Friday</td>
<td>Mid-Term Grades Due</td>
</tr>
<tr>
<td>November</td>
<td>03</td>
<td>Monday</td>
<td>Web Registration Begins for Spring 2009</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>Friday</td>
<td>Last Day to Withdraw from Courses</td>
</tr>
<tr>
<td></td>
<td>19</td>
<td>Wednesday</td>
<td>Senate Meeting</td>
</tr>
<tr>
<td></td>
<td>26–28</td>
<td>Wed-Fri</td>
<td>Thanksgiving Holiday – No Classes</td>
</tr>
<tr>
<td>December</td>
<td>05</td>
<td>Friday</td>
<td>Last Day of Classes</td>
</tr>
<tr>
<td></td>
<td>08–13</td>
<td>Mon-Sat</td>
<td>Final Exam Period – Winter Recess Begins after Last Examination</td>
</tr>
<tr>
<td>January</td>
<td>02</td>
<td>Friday</td>
<td>Deadline to submit incomplete work to Faculty for Fall 2008</td>
</tr>
</tbody>
</table>

## 2009 January Inter-Session

<table>
<thead>
<tr>
<th>Month</th>
<th>Date</th>
<th>Day</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>05</td>
<td>Monday</td>
<td>Classes Begin</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>Friday</td>
<td>Last Day of January Intercession</td>
</tr>
<tr>
<td></td>
<td>19</td>
<td>Monday</td>
<td>Martin Luther King, Jr. Holiday (No Classes)</td>
</tr>
</tbody>
</table>
## 2009 SPRING SEMESTER

<table>
<thead>
<tr>
<th>Month</th>
<th>Day</th>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>20</td>
<td>Tuesday</td>
<td>Classes Begin</td>
</tr>
<tr>
<td></td>
<td>26</td>
<td>Monday</td>
<td>Late Registration &amp; Add/Drop Ends</td>
</tr>
<tr>
<td>March</td>
<td>13</td>
<td>Friday</td>
<td>Mid-Term Grades Due</td>
</tr>
<tr>
<td></td>
<td>16-20</td>
<td>Mon-Fri</td>
<td>Spring Break</td>
</tr>
<tr>
<td>April</td>
<td>01</td>
<td>Wednesday</td>
<td>Web Registration Begins for Fall 2009</td>
</tr>
<tr>
<td></td>
<td>07</td>
<td>Tuesday</td>
<td>Founder’s Day: The Feast of St. John Baptist de la Salle, Patron of Teachers</td>
</tr>
<tr>
<td></td>
<td>10-13</td>
<td>Fri-Mon</td>
<td>Easter Holiday – No Classes</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>Tuesday</td>
<td>Monday Schedule</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>Tuesday</td>
<td>Last day to withdraw from courses</td>
</tr>
<tr>
<td>May</td>
<td>05</td>
<td>Tuesday</td>
<td>Last Day of Classes – Friday Schedule</td>
</tr>
<tr>
<td></td>
<td>06</td>
<td>Wednesday</td>
<td>Reading Day</td>
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<tr>
<td></td>
<td>07-09</td>
<td>Thurs-Sat</td>
<td>Final Exam Period</td>
</tr>
<tr>
<td></td>
<td>11-13</td>
<td>Mon-Wed</td>
<td>Final Exam Period</td>
</tr>
<tr>
<td></td>
<td>17</td>
<td>Sunday</td>
<td>The One Hundred and Sixty Seventh Commencement (Undergraduate)</td>
</tr>
<tr>
<td>June</td>
<td>02</td>
<td>Tuesday</td>
<td>Deadline to submit incomplete work to Faculty for Spring 2009</td>
</tr>
</tbody>
</table>

*Subject to changes*
### 2008

#### January
- S M T W T F S
- 1 2 3 4 5 6 7
- 8 9 10 11 12 13 14
- 15 16 17 18 19 20 21
- 22 23 24 25 26 27 28
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#### February
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#### August
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#### September
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- 22 23 24 25 26 27 28
- 29 30 31

#### October
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- 22 23 24 25 26 27 28

#### November
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- 22 23 24 25 26 27 28
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#### December
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- 15 16 17 18 19 20 21
- 22 23 24 25 26 27 28
- 29 30 31

### 2009

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- 15 16 17 18 19 20 21
- 22 23 24 25 26 27 28
- 29 30

#### December
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- 15 16 17 18 19 20 21
- 22 23 24 25 26 27 28
- 29 30 31
The Mission of Manhattan College

At its quarterly meeting on October 23, 1990, The Board of Trustees of Manhattan College adopted the following statement of Mission:

Manhattan College, overlooking Van Cortlandt Park in Riverdale, is an independent Catholic institution of higher learning which embraces qualified men and women of all faiths, races and ethnic backgrounds. Established in 1853, the College is founded upon the Lasallian tradition of excellence in teaching, respect for individual dignity, and commitment to social justice inspired by the innovator of modern pedagogy, John Baptist de La Salle.

The mission of Manhattan College is to provide a contemporary, person centered educational experience characterized by high academic standards, reflection on faith, values and ethics, and lifelong career preparation. This is achieved in two ways: by offering students programs which integrate a broad liberal education with concentration in specific disciplines in the arts and sciences or with professional preparation in business, education and engineering; and by nurturing a caring, pluralistic campus community.

The learning experience at Manhattan College is enriched by cooperative programs with other institutions, by postgraduate professional programs and by capitalizing on its location on the edge of the cultural center and global marketplace that is New York City.

Historical Note

Manhattan College was founded in May 1853 when the school, originally established by the Brothers of the Christian Schools in 1848, moved from Canal Street in lower Manhattan to what was then known as the Manhattanville section of New York City at 131st Street and Broadway. Between 1853 and 1863, the school changed rapidly, adding college-level courses in 1859 and first using the name Manhattan College in 1861. A Board of Trustees composed of ten laymen and eight Brothers of the Christian Schools was assembled in 1862 to petition the Board of Regents and the Legislature of the State of New York to charter a collegiate institution named Manhattan College. The charter was approved by the Legislature and issued by the Board of Regents on April 2, 1863. The first catalog of the newly chartered College stated its goals as follows:

The object of this institution is to afford the youth of our country the means of acquiring the highest grade of education attained in the best American universities or colleges. While the conductors mean that the classical languages shall be thoroughly studied, they have resolved to give a prominence to the higher mathematics and natural sciences not hitherto received in any similar institution in this country; thus combining the advantages of a first-class College and Polytechnic Institute.

Thus, Manhattan College was an unusual institution. Its sponsoring Board of Trustees combined both secular independent members and representatives of the religious teaching Institute of the Brothers of the Christian Schools. It also combined excellence in the traditional liberal arts and sciences and excellence in professional and technical education in a single collegiate institution.

Bordered by the Hudson River and Van Cortlandt Park, the college is able to offer access to the cultural, educational, business and entertainment opportunities of New York City as well as a self-contained campus environment.

The College continues to realize the objectives stated in its first catalog by maintaining a full range of programs in the liberal arts and sciences joined with professional programs in engineering, business, and education. The quality of the undergraduate programs has been demonstrated by the College’s record as one of the nation’s leading undergraduate sources of doctorates in the arts, sciences, engineering and education, and recognized by the establishment of chapters of such prestigious honor societies as Phi Beta Kappa, Sigma Xi, and Tau Beta Pi. Similarly, Standard & Poors ranks the Manhattan College School of Business among the leading undergraduate sources of managerial and financial leadership in the nation. The College participates
in the Consortium of Liberal Arts Colleges, an organization of the nation’s leading research colleges, and in the New York Cluster of seven colleges and universities supported by the Pew Charitable Trusts for undergraduate science education (Barnard, Colgate, Cornell, Hamilton, Manhattan, St. Lawrence and Union).

From its beginning, Manhattan College has paid particular attention to educating first-generation college students, and was an early proponent of access to minority students, establishing special scholarship funds for minority students as early as 1938. Currently, over 25% of the student body are from racial and ethnic minority backgrounds.

The College became coeducational and accepted its first women undergraduate students in 1973. Currently, women number 50% of the full-time undergraduate student body. Resident students comprise 61% of the undergraduate student population.

Currently, the College has a student body of approximately 3,250: 2,900 undergraduates and 350 graduate students. The student-faculty ratio is thirteen to one.

Recognition and Membership
Manhattan College is chartered and empowered to confer academic degrees by the University of the State of New York.

It is accredited by the Middle States Commission on Higher Education, 3624 Market Street, Philadelphia, PA 19104-2680, 215-662-5606, www.msache.org. The college is approved by the American Chemical Society for the professional training of chemists and by the New York State Department of Health for Radiation Therapy Technology.

The School of Business is accredited by AACSB International, The Association to Advance Collegiate Schools of Business, the premier accrediting agency for business programs globally.

The programs in Chemical Engineering, Civil Engineering, Electrical and Computer Engineering, Environmental Engineering, and Mechanical Engineering are accredited at the basic level by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

The College is a member of the Association of American Colleges, the American Council on Education, the Institute of International Education, the National Catholic Educational Association, the Association of Urban Universities, the Association of Governing Boards of Universities and Colleges, the American Association of University Women, the American Society for Engineering Education, Middle Atlantic Association of Colleges of Business Administration, Association of Continuing Higher Education, the National Association of College and University Summer Sessions, American Association of Colleges for Teacher Education, the College Entrance Examination Board, and the National Commission for Cooperative Education.

Non-Discrimination Policy
Manhattan College has had a longstanding policy of non-discrimination. The College repudiates all discriminatory procedures and specifically those based on race, color, religion, national origin, age, sex, disability or any other protected status. The College does not knowingly support or patronize any organization or business which discriminates.

No person shall be denied admission or access to the programs or activities of Manhattan College, nor shall any person be denied employment at the College, solely because of any physical, mental or medical impairment within reasonable accommodations. Inquiries concerning this policy may be referred to Human Resources.

Auxiliary aids and academic adjustments within the guidelines of the ADA/Section 504 are provided without charge by the Specialized Resource Center, Room 300A, Miguel Hall, Voice: (718) 862-7101, TTY: (718) 862-7885.

The Title IX and Age Act Coordinator is located within the Office of Human Resources, Memorial Hall, Room 305. The ADA/Section 504 Coordinator is located within the Specialized Resource Center, Miguel Hall, 300A.
Family Educational Rights and Privacy Act of 1974

The Family Educational Rights and Privacy Act of 1974, known as FERPA or the “Buckley Amendment” applies to all educational institutions, schools or other entities that receive funds under any program administered by the U.S. Secretary of education. FERPA is a law designed to protect the privacy interests of students (on the postsecondary level). The underlying intent of the law is to protect student rights. Manhattan College informs students of the Family Educational Rights and Privacy Act of 1974, as amended. This Act, with which the institution intends to fully comply, is designed to protect the privacy of educational records, to establish the right of students to inspect and review their educational records, and to provide guidelines for the correction of inaccurate or misleading data through informal and formal hearings. Questions concerning the Family Educational Rights and Privacy Act may be referred to the Registrar. Students also have the right to file complaints with the U.S. Department of Education concerning alleged failures by the College to comply with the requirements of FERPA. The name and address of the Office that administers FERPA is: Family Policy Compliance Office, U.S. Department of Education, 400 Maryland Avenue, SW, Washington, DC 20202-5901.

Location

The College is situated along Manhattan College Parkway on the heights above Van Cortlandt Park (242nd Street and Broadway) in the Riverdale section of New York City. It is a short distance from the 242nd Street station of the Broadway Seventh Avenue Subway, and can be easily reached from any part of the metropolitan or suburban areas. The exit of the Henry Hudson Parkway (West Side Highway) located at 239th Street several blocks to the west of the College puts the campus within easy reach of New Jersey. The College is also within easy commuting distance from Long Island and Westchester and Rockland counties because of its proximity to the New York State Thruway and the Major Deegan Expressway (exit at Van Cortlandt Park South or West 240th Street).
ADMISSION

Application for admission to Manhattan College may be made by filing the Manhattan College Application for Admission, the Common Application, or the on-line Common Application which can be found on the College’s website.

In reviewing applications for admission, the following items are considered by the Committee on Admissions.

Freshman Admission

1) Course Selection and Performance
Most emphasis is placed upon student course selection on the secondary level and grades earned in those subjects.

All applicants must have completed a minimum of 16 units in academic subjects which should include the following:

<table>
<thead>
<tr>
<th>Required Units*</th>
<th>Recommended Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>4 4</td>
</tr>
<tr>
<td>Modern or Classical Language</td>
<td>2 3</td>
</tr>
<tr>
<td>Science (Lab Sciences)</td>
<td>2 3</td>
</tr>
<tr>
<td>Mathematics**</td>
<td>3 4</td>
</tr>
<tr>
<td>Social Studies</td>
<td>3 3</td>
</tr>
<tr>
<td>Electives</td>
<td>2</td>
</tr>
</tbody>
</table>

At the discretion of the Committee on Admissions, quantitative requirements may be modified for applicants with strong records who show promise of doing well in college work.

** This includes algebra, geometry, intermediate algebra/trigonometry (sequence 1, 11 and 111).

2) SAT and/or ACT Scores
Applicants are required to submit one of these entrance examinations to the Committee on Admissions. Scores are not considered solely but do give an indication of a student’s potential.

3) Recommendations
Grades and examination scores alone do not adequately evaluate a student’s ability to be successful in college. Therefore, appropriate character references are considered important when reviewing candidates for admission.

4) Personal Statement
Applicants are required to submit a brief, personal statement detailing their reasons for applying to Manhattan College.

5) The General Equivalency Diploma (G.E.D.) is accepted in lieu of a high school diploma for admission to some programs of the College.

6) In rare instances the Admissions Committee will consider waiving the above requirements for admission. Please contact the Office of Admissions for further information.

Campus Visit

A visit to the Manhattan campus is strongly recommended to all prospective students. By contacting the College in advance, (1-800-MC2XCEL), students can arrange to have an interview with a member of the admissions staff, have a tour of the campus, speak with faculty and visit with other students. Tours are offered Monday through Friday between the hours of 9:00 a.m. and 4:00 p.m. Saturday morning information sessions are also available during the fall for high school seniors and their families.

Early Decision

Students who submit a completed application for admissions prior to November 15 and indicate consideration for this special program will be notified of a decision by December 1. Occasionally the Committee will request additional information before making a final decision. This option is available to students who consider Manhattan College their number one choice of college. If accepted under this program, it is assumed the student will enroll at Manhattan College and withdraw all pending applications for admission to other institutions.
Scholarship Applicants

All freshmen applicants seeking consideration for merit-based scholarships must have their application for admission on file by February 15th.

Early Admission

Manhattan will consider for admission any qualified student upon completion of the junior year. Students must present required academic credentials and qualifications for admission. It is important to note that secondary school graduation requirements must be met, and a diploma issued, to qualify for this program.

Notification of Admission

Applications will be reviewed on a rolling admission basis. When a student has filed a completed application (high school transcript, College Board scores, and recommendations) with the Admissions Office, the committee will act upon it. In many cases, before a decision is made students will be asked to submit copies of their senior grades in January. All acceptances are contingent upon the successful completion of senior year of high school and proof of graduation.

Transfer Admission

1. With an Associate Degree (A.A. or A.S.)

2. Students who are transferring without an associate degree or with an A.A.S. degree must submit:
   1. A high school transcript.
   2. Official college transcripts,
   3. A list of courses presently being taken,
   4. College catalogs from all institutions previously attended,
   5. Financial aid transcripts from all collegiate institutions previously attended (even if you only took one or two courses while in high school).

With this information the Admission Committee will make a preliminary evaluation of a student’s record. The applicant will be notified of acceptance or rejection. He/she will also be informed of the number of transfer credits granted. Ordinarily transfer students must earn fifty percent (50%) of the credit for graduation at Manhattan College. “P” grades may be accepted for credit but only if they represent a “C” or better as defined by the regulations of the institution of origin. All of the above credentials must be on file in the Admissions Office before an application is reviewed for admission. All acceptances for students who have work in progress at another college or university are conditional upon successful completion of work in progress without withdrawals and with a minimum index of 2.50. Transfer Articulation Agreements do exist with a number of two-year colleges, i.e., Rockland Community College, Westchester Community College, Nassau Community College, Hudson Valley Community College, Bergen Community College, and Morris Community College.

Readmit Students

Any student who unofficially or officially withdraws from the College must be readmitted through the Admissions Office. Credits earned at other institutions after leaving Manhattan College will be evaluated according to existing school policies.

Students returning after an official leave of absence will be readmitted by the Dean's Office that initially granted the leave. Only students making satisfactory progress will be granted an official leave of absence. Students transferring to another school within the College must first seek clearance from the original Dean.

Veterans

Any veteran who has not attended college since being discharged from the service and who has a high school or General Equivalency Diploma (G.E.D.) and has been satisfactorily interviewed by an admissions counselor is eligible for admission to Manhattan. Special tutoring is available and every effort is made to work out a program of study which meets the student's potential. Advanced standing will be granted in appropriate circumstances after consideration of previous college work.
The Office of the Vice President for Student Life, located in Memorial Hall, is responsible for arranging any V.A. benefits. Veterans should bring a copy of their DD 214 form to the office with their letter of acceptance. The eligibility for the V.A. benefits is for the semester or session for which they are in attendance. To continue to be eligible for these benefits in subsequent semesters, veterans must report to the Office of the Vice President for Student Life to renew the certification of attendance at the beginning of each semester for which they are registered.

The following information is important:

a. Veterans are paid benefits for actual credit hours in attendance. Twelve semester hours is considered full time for V.A. benefits.

b. Any change of status—withdrawal from a course, non-attendance in a particular semester, failure to register for a subsequent semester—must be reported by the student to the Vice President for Student Life immediately.

**Programs of Credit By Examination**

Credit by examination will be awarded only for courses in consonance with the prescribed or elective courses applicable to the degree. Such credit is awarded and will be so identified on the student's record after he/she has registered and is attending class. The academic dean concerned determines courses which are equivalent to the examinations taken.

Total credit by examination to entering, as well as to enrolled students, in any or all programs in which the college participates may not exceed one-fourth of the total number of credit hours normally required for the degree. No grades are assigned to courses credited.

**Advanced Placement**

Students who have successfully taken one or more of the Advanced Placement Tests of the College Entrance Examination Board may ask for advanced placement and/or credit. The Dean of the School to which application is made will decide on the amount of credit to be granted and the college course or courses that may be omitted in place of the Advanced Placement Tests.

Scores of 3, 4 or 5 are required for such action. The decision to grant advanced placement and/or credit is based on such other factors as the Advanced Placement's equivalence to the content of courses in the College's curricula and the applicability of the area of advanced study to the prescribed or elective requirements of the program in which the student is enrolled.

Advanced placement and/or credit action is taken only if the student has specifically requested such consideration and has submitted official score reports from the College Board. No grades are assigned to courses credited.

At times, students with an Advanced Placement score of 3 who intend to major in the area where they have taken an Advance Placement course, or who are required to take upper-division courses in the same area, will be advised to repeat the college's course rather than accept Advance Placement credit. This advice is based upon the college's past experience with such students, and applies especially to students pursuing upper-division courses in the natural sciences.

**College Proficiency Examination Program (CPEP)**

Manhattan College is a participant in the New York State College Proficiency Examination Program (CPEP) and subscribes to its policy of credit by examination regardless of the individual's background or formal preparation. For further information, contact:

CPE Program
Cultural Education Center
Albany, New York 12230
College Level Examination Program (CLEP)

Newly matriculated students may apply for CLEP credit for examinations taken prior to matriculation. Students enrolled in the college will not be given credit for CLEP tests. The minimum CLEP score for credit will be 50. A higher minimum score for “level 2” credit for foreign languages will be required. The college will follow the American Council on Education (ACE) guidelines for awarding credit. Individual departments should examine the minimum score and number of credits for CLEP examinations. For further information, contact:

College Board
P. O. Box 6600
Princeton, NJ 08541

International Baccalaureate

Manhattan College welcomes applicants with International Baccalaureate credits or the International Baccalaureate diploma. Manhattan will grant credit for higher-level examination scores of 5, 6, or 7 if the examination is in an appropriate academic area. The Dean of each School will make the decision on appropriate academic level in consultation with individual departments.

Student Status

Qualified persons may be admitted to either matriculated or non-matriculated status.

1. Matriculated Students: Students who have completed the equivalent of a regular college preparatory program in high school or beyond and meet the normal entrance requirements of the program for which they have applied. They are considered to be candidates for a Manhattan College degree in the program for which they are enrolled at the college. In order to be matriculated, applicants must present to the Admissions Office an application for admission with all supporting documents to indicate that they are qualified for matriculation to the college. Only the Admissions Office can allow applicants to matriculate.

2. Non-matriculated Students are academically qualified persons following one or more regular courses without the intention of earning a degree at Manhattan College. Applicants wishing to enroll as non-matriculated students must apply to the Admissions Office and present evidence that meet requirements for admission. In exceptional circumstances, the Committee on Admissions may invite a candidate who does not qualify for matriculated status to enter the college as a non-matriculated student for a limited period of time. The student must in turn demonstrate adequate preparation and motivation to pursue the program of studies for which he/she has applied. Non-matriculated students may not pursue more than 9 credits at Manhattan College. The student’s program will be prescribed by the Dean of the school in which the student will be registered. Qualified non-matriculated students who wish to pursue more than 9 credits at Manhattan College must apply formally to the Admissions Office for matriculation.

Non-matriculated students may fall into either one of the following categories:

1. Non-degree Students: students who are matriculated at another institution and wish to follow a course or courses for credit at Manhattan College. All such students must present to the Admissions Office official correspondence noting good standing, together with an authorization to follow courses from a responsible official of the college at which they are matriculated.

2. Auditors: Non-matriculated students may audit one or more course with the clear understanding that no college credit will be earned. All persons must apply to the Admissions Office and present evidence that they are qualified to follow the courses which they request.
Leave of Absence, Withdrawal from the College, and Withdrawal from a Course

Leave of Absence
Students currently enrolled in Manhattan College who wish to leave the College in the following semester for personal, medical or psychological reasons, after which they intend to return, should request a leave of absence from the dean of his or her School. Students requesting a leave of absence for medical or psychological reasons must have their requests reviewed by the director of counseling and health services.

If the request for a leave of absence is approved, a maintenance-of-matriculation registration must be completed and will be used to maintain the student's matriculation status as active during the leave. In addition, the maintenance-of-matriculation registration permits the student on his or her return to Manhattan College to follow the degree program requirements in effect at the time the leave was granted. In special circumstances, a student may apply through his or her dean's office for one (and only one) additional semester of leave by completing a maintenance-of-matriculation registration.

A student whose request is approved will be billed a maintenance-of-matriculation fee.

Generally, students who have been approved for a leave of absence do not need to apply for reinstatement to the College. In addition, any academic scholarships awarded by the College will remain available to them after a one-semester leave of absence, provided they continue to meet the eligibility requirements. Students taking a leave of absence who are recipients of federal Title IV financial aid must consult with Student Financial Services to determine the implications of that leave on their financial aid eligibility.

A leave of absence for medical or psychological reasons requires prior approval of the director of the counseling center. When the leave of absence is granted for medical or psychological reasons, the student can return to Manhattan College only after the director of counseling and health services has indicated that the medical or psychological condition has been addressed and the student is capable of resuming his or her studies at Manhattan. To this end, the student will be required to submit a written progress assessment from a treating health professional attesting to the student's readiness to resume studies at Manhattan College. This documentation must address the diagnosis, prognosis and treatment plan for the semester of return. The director of counseling and health services may also require a release from the student to discuss current treatment and follow-up needs with the treating health professional, in order to assess whether the student is qualified and ready to return to the College. The director of counseling and health services approves the return of all students who have been granted a leave of absence for medical or psychological reasons.

If a student is approved for a leave of absence and later is suspended, dismissed, or placed on probation as a result of academic issues or suspended or expelled as the result of a judicial decision, these sanctions take precedence over a leave of absence and stand as a matter of record.

Withdrawal from the College

Regular Withdrawal
Students currently enrolled in Manhattan College who wish to withdraw from the College, effectively ending their status as matriculated students, must complete the required Manhattan College Withdrawal Form. An appointment should be made with the appropriate Academic Advisor to have an exit interview and to complete the required form. This form must be completely filled out or students will not be eligible for tuition adjustments and may be responsible for paying back any financial aid received from the College. Students will be considered withdrawn on the date that the properly completed Manhattan College Withdrawal Form is returned to the registrar's office. The Registrar's signature and date authenticate the Manhattan College Withdrawal Form. Students who withdraw from the College after the last day for course withdrawal for that semester will receive a grade of “F” for all courses during the session unless a waiver is granted by the Provost for medical, psychological, or emergency reasons.
In this case, the student will receive a grade of “W” for all courses during that session.

Administrative Withdrawal
A student may be administratively withdrawn from the College (1) if he or she fails to register for classes by the end of the add/drop period, (2) if he or she fails to attend classes by the end of the add/drop period, (3) if he or she has not returned to the College or fails to qualify to return to the College when the approved period of leave of absence has expired, (4) if he or she has not returned after academic or disciplinary suspension at the time specified and the period of suspension has not been expended, or (5) if in extraordinary circumstances a student is unable or unwilling to request a voluntary leave of absence or a voluntary medical leave of absence and there is a clear need to protect the safety of the student and/or others, or to protect the integrity of the College’s learning environment.

Reinstatement Following Withdrawal
A student who withdraws or is withdrawn from the College may apply for reinstatement. In order to return to the College from a withdrawn status, a student must make a request in writing to his or her dean at least eight weeks before the beginning of the semester to which the student seeks to return. The College reserves the right to require, review, and approve documentation that the student is qualified and ready to return to academic work.

In the case of a voluntary withdrawal for medical/psychological reasons, or any administrative withdrawal under this policy related to a physical or mental health condition, the student must submit a written progress assessment from a treating health professional as part of the request for reinstatement. The director of counseling and health services may require a release from the student to discuss current treatment and follow-up needs with the treating health professional, in order to assess whether the student is qualified and ready to return to the College and whether the College can provide the follow-up care needed to maintain the student’s enrollment. The director of counseling and health services approves the return of all students who have withdrawn or been withdrawn for medical or psychological reasons.

Students who are reinstated following a withdrawal from College will comply with the degree requirements of the catalogue in effect when they are reinstated.

Withdrawal from a Course
After the Add/Drop period at the beginning of each semester, students are permitted to withdraw from a course without academic penalty until the twelfth week of the semester. The required Course Withdrawal Form is available in the office of their dean. Withdrawing from a course after the Add/Drop period and before the deadline for all withdrawals places a W on the transcript for that course. After the withdrawal deadline at the end of the twelfth week, the student will receive a grade of F for that course unless there are extraordinary circumstances (such as severe illness) that merit an exception. Students are cautioned to avoid a pattern of regularly accumulating W grades on their transcripts.

International Students
Manhattan College requires applicants for admission whose native language is not English to submit scores from the Test of English as a Foreign Language (TOEFL). To apply for this test, write to: Test of English as a Foreign Language, Educational Testing Service, Princeton, New Jersey, 08540 U.S.A.

In addition, the College also encourages, and at times requires candidates to file scores from the Scholastic Aptitude Test (SAT). Transcripts submitted for admission must be official and must be translated into English. Applicants should contact World Education Services Inc., P.O. Box 745, Old Chelsea Station, New York, New York 10011 for a course by course evaluation of credits.

Prior to an I-20 form being issued to an accepted student, the accepted applicant must submit a letter of credit from a United States bank or a certified check from a financial institution in the amount of one semester’s tuition. If the student is accepted as a resident student at Manhattan College a certified check from a financial institution, covering the cost for one semester of room and board fees must be submitted to the Admissions Office. It is strongly
encouraged that international students file this material with the application for admission before a decision is rendered by the Admissions Committee.

PROGRAMS OF THE COLLEGE

Manhattan College offers degree programs in each of the following areas:

1. Arts
   • The Liberal Arts Curricula, leading to the Degree of Bachelor of Arts. In Psychology, leading to the Degree of Bachelor of Arts or Bachelor of Science
   • The Curricula in General Studies, leading to the Degree of Bachelor of Science (General Studies)

2. Science
   • The Science Curricula, leading to the Degree of Bachelor of Arts or Bachelor of Science

3. Engineering
   • Curricula in Chemical, Civil, Computer, Electrical, Environmental and Mechanical Engineering, leading to the Degree of Bachelor of Science in the appropriate specialty

4. Business
   • The Business Curriculum, leading to the Degree of Bachelor of Science (Business Administration)

5. Education
   • Teacher Preparation Curricula in academic subjects, leading to the Degree of Bachelor of Arts (Education), or the Degree of Bachelor of Science (Education)
   • The Physical Education Curriculum, leading to the Degree of Bachelor of Science (Physical Education)
   • The Special Education Curriculum, leading to the Degree of Bachelor of Science (Special Education)
   • Radiological and Health Sciences Curricula, leading to the Degree of Bachelor of Science (Radiological and Health Sciences)

6. The Graduate Division
   • Programs leading to the Degree of Master of Arts (Counseling), Master of Science in Education (Special Education, Administration and Supervision), Master of Science (Civil, Computer, Environmental, Electrical, Chemical, and Mechanical Engineering), Master of Engineering (Environmental Engineering). Separate catalogue issued.

Study Abroad Opportunities

Manhattan College encourages students to enhance their education through Study Abroad programs. In order to participate in such a program, a student must generally have a minimum cumulative index of 2.75. Students generally take a semester or a year abroad in their junior year, and occasionally in first semester of senior year. Participation in Study Abroad in second semester of senior year may interfere with graduating on time.

The College offers Study Abroad opportunities in many countries, including Manhattan’s own program at the University of Madrid. Exchange programs are available at the Universities of Paris (through MICEFA), LaSalle University of Mexico City and LaSalle University of Barcelona, Spain. Study Abroad programs are also available through our partnership with the colleges and universities of the Lower Hudson Consortium and the LaSallian International Programs Consortium.

All foreign study programs must be approved by the Dean of the School in which the student is enrolled and the Dean of Students, in consultation with the Director of Study Abroad Programs. Further information is available through the Study Abroad Office.
Specialized Resource Center

The Specialized Resource Center (SRC) serves all students with special needs including individuals with temporary disabilities, such as those resulting from injury or surgery. The SRC is a resource for students, faculty and the college at large. Use of services is voluntary, strictly confidential and without fee. The mission of the center is to ensure educational opportunity for all students with special needs by providing access to full participation in campus life. This is accomplished by assisting students in arranging individualized support services. A sampling of auxiliary aids and/or academic adjustments offered by the SRC for students providing appropriate documentation based on their individual needs for no fee include: priority seating; alternative testing environments; readers, note takers and scribes; access to adaptive technology; books on tape; and, liaison with faculty and other college departments. The SRC is located within Room 300 Miguel Hall.

Academic Support Center

The Academic Support Center, located on the third floor of Miguel Hall, is available to all students who wish to improve their learning skills or who want academic support. Working one-to-one or in small groups, professional staff and undergraduate tutors help students improve or refresh skills. Tutors are available for most subjects taught at the College.

The Writing Center

The Writing Center offers writing instruction to all members of the Manhattan College community. Assistance is available for writing assignments from any discipline as well as for any professional writing activities. Our cornerstone practice is one-on-one conferencing with trained writing consultants: we help writers identify problems and implement solutions at any point during their writing process. We forge intellectual partnerships to work on specific assignments, to increase confidence, and to improve overall writing performance. Various writing workshops will augment this one-on-one philosophy.

Center for Career Development

The College maintains an active Career Services and Cooperative Education Center designed to assist all students in systematically identifying, clarifying and achieving their career goals.

The Center offers individual career counseling which may be enhanced through the use of various decision-making tools such as SIGI PLUS (System of Interactive Guidance and Information). In addition to individual career counseling, group workshops are offered in the areas of career exploration, resume writing, interviewing, skills and job search techniques.

A full range of placement services is provided for students seeking full-time, part-time and summer jobs. For those seniors seeking full-time employment upon graduation, there is an active campus recruitment program available during the fall and spring semesters. Here, representatives from several hundred companies/organizations come to campus to interview students for career opportunities. For those students who choose to continue their studies, graduate school advisement is available. A credentials file service is offered to support applications to graduate/professional schools. The resource library provides information on various career fields and contains annual reports and literature on many corporations and not-for-profit organizations.

To ease the transition from college to the world of work, a Cooperative Education Program is available to students who have completed at least three semesters of study and who are in good academic standing. The Co-op Program gives students the opportunity for a series of meaningful off-campus work experiences related to their on-campus study and career interests. It complements and broadens one's education through the practical application of the theoretical and technical knowledge gained in the classroom.

Manhattan co-ops have had full-time and part-time placements in business, law firms, government agencies, social service organizations, museums, research laboratories, etc. Cooperative Education offers students a realistic way to explore and evaluate their interests, skills and career options while they earn academic credit and an appropriate salary.
All students are encouraged to take advantage of the services of the Center as early as possible in their college experience.

**Aerospace Studies (ROTC)**

Air Force Reserve Officer Training Corps (ROTC) is conducted at approximately 600 colleges and universities throughout the United States in order to select and train men and women to become commissioned officers in the U.S. Air Force. Most graduates who enter the Air Force through ROTC are assigned positions consistent with their academic major. Others, who wish to do so, may qualify to become pilots and navigators. Men and women who complete graduation requirements and the Professional Officer Course (POC) receive commissions and enter active duty as second lieutenants. Officers who qualify may take graduate training prior to beginning their military duties. Scholarships are available to qualified students. For more information about scholarships, please see the Financial Assistance section of this catalog or call (718) 862-7201. Air Force ROTC is taught at Manhattan College, in Riverdale, and at Dowling College, Oakdale Long Island, but is available to any student attending college in the Greater New York area.

**Four-Year Program**

The Air Force ROTC offers both the four-year and two-year commissioning programs. The four-year program consists of the four-semester General Military Course (GMC) and the four-semester Professional Officer Course (POC). Students normally start this program as freshmen but may begin as sophomores by enrolling in both the freshman and sophomore year classes. Students not on scholarship may withdraw from the GMC at any time. Participants in the POC are selected from qualified volunteer applicants. An Air Force ROTC-paid four-week field training encampment, held at an Air Force base, is required for POC students. This requirement is normally completed during the summer between the sophomore and junior years. The major areas of study during field training include physical fitness, junior officer training, aircraft and aircrew orientation, career orientation, survival training, base functions, and the Air Force environment.

**Two-Year Program**

The two-year program consists of a paid five-week summer field training encampment and the four-semester POC. Participants in this program are selected from qualified volunteer applicants. This program is designed for undergraduate and graduate students with less than three but at least two years remaining in a college within the NYC area. Normally, candidates qualify for this program during the fall semester of their sophomore year. The five-week field training is a prerequisite for the POC. The major areas of study at field training are the same as in the four-year program with the addition of the GMC academic curriculum.

**Special Sessions**

The College provides special sessions in January, May, and during the summer. These special sessions are scheduled primarily for the benefit of students matriculated at Manhattan College, but are also open to properly qualified applicants from other accredited institutions. By attending a special session a student may lighten his/her course load for subsequent periods of instruction, make up for deficient credits, or elect extra credits to diversify and enrich his/her academic program. A student may be required to attend a special session if his/her scholastic performance is poor, or if his/her record contains D or F grades in required, prerequisite or sequential courses. The College will normally not accept credits taken at another institution for required, prerequisite or sequential courses.

All special session courses are the same in the number and length of periods as those described in the Catalogue for the normal academic semesters. Final examinations will be given in each course. Members of the regular teaching staff of the College constitute the special session faculty.

Students from other colleges must present written authorization from the Dean or other qualified official of their college to follow summer courses. Special sessions are held in January, May, June and July. These short but intensive programs permit a full-time or part-time college student the opportunity to gain additional credits for self growth, enrichment, and to accelerate the completion of the degree process.
Schedules for special sessions are issued in November and April. The enrollment of a minimum number of students will be required for offering any course in the intersession or summer session.

ACADEMIC STANDARDS AND PROCEDURES

Requirements for Graduation

Each student is expected to be familiar with the academic regulations of the College and the particular requirements for his or her educational program. The student has sole responsibility for complying with regulations and meeting degree requirements. General academic standards and regulations are set forth below.

Students should also consult the current Student Handbook, which explains College procedures, disciplinary regulations, residence student life and related matters. This handbook is available in the Office of the Dean of Students and the Office of the Director of Residence Life.

To be eligible for graduation a student must have satisfactorily completed all the courses required in the program for which he/she is registered. In following his/her program a student must successfully complete all prerequisite courses before moving to more advanced work. He/She must obtain a minimum average of C (i.e., a cumulative scholarship index of 2.00, computed according to the method set forth in the College Catalogue). Students are personally responsible for meeting the degree requirements prescribed in the Catalogue at the time they entered Manhattan College.

Grading Policies

The grades used to indicate the quality of the student’s performance in every course are as follows: A means excellent, B means good, C means satisfactory, D means poor but passing, F means failing. For the purpose of computing grade point averages, the corresponding numerical equivalents for letter grades will be used:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Quality Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4.0</td>
</tr>
<tr>
<td>A-</td>
<td>3.67</td>
</tr>
<tr>
<td>B+</td>
<td>3.33</td>
</tr>
<tr>
<td>B</td>
<td>3.0</td>
</tr>
<tr>
<td>B-</td>
<td>2.67</td>
</tr>
<tr>
<td>C+</td>
<td>2.33</td>
</tr>
<tr>
<td>C</td>
<td>2.0</td>
</tr>
<tr>
<td>C-</td>
<td>1.67</td>
</tr>
<tr>
<td>D+</td>
<td>1.33</td>
</tr>
<tr>
<td>D</td>
<td>1.0</td>
</tr>
<tr>
<td>F</td>
<td>0.0</td>
</tr>
</tbody>
</table>

I Incomplete. Indicates that some requirement of a course has not been satisfied by the end of the term. In all cases the incomplete work must be completed and submitted to the instructor not later than 20 days from the last day of the term’s final examination period.

W Withdrawal. Indicates withdrawal from a course in which the student is regularly enrolled. The student is required to have the withdrawal notification form signed by the instructor of the course. The deadline for withdrawal from a course will be three weeks before the last day of scheduled classes. In “W” courses, neither quality hours or quality points are assigned.

P Passing. No quality points assigned.

NC No Credit.

P/F Pass/Fail. In Pass/Fail courses, neither grade influences the grade point average. Credit is awarded for a P grade; no credit for F.

Quality points and quality hours are assigned for every credit attempted at Manhattan except those taken on a Pass/Fail basis, and those for which designations of a W or an I have been assigned. The scholarship index is determined by dividing the total number of quality points earned by the total number of quality hours.

For all students, the cumulative scholarship index is computed at the end of each semester; for those who attend the summer or winter sessions it is also computed at the end of each session.
Repeating a Course
(Effective Fall 2003)

All grades that a student earns at Manhattan will appear on the student’s transcript. If a student repeats a course in which the required minimum grade has not been earned, both grades are shown on the transcript and are included in both the semester and cumulative indices. However, if a student chooses to repeat a course in which the required minimum grade or better has already been earned, the second grade is not included in the cumulative index. In this case, the second grade is shown on the transcript and is included in the semester index for the semester in which the course was repeated. In either case, the course is credited only once toward the total credits earned. If a student earns a second “F” in any course, the “F” is included in the semester and cumulative index both times.

When a student repeats a course, the original quality points and quality hours earned in the term in which the original grade was earned are not affected. All course repeats must be done at Manhattan College. Students should note that eligibility for certain financial aid may be impacted when repeating courses.

Grade Reports

Final grades are given at the end of each semester and at the conclusion of work in the Summer Sessions and the January Intersession. Students can view their final grades on Self-Service. Mid-term grades are issued to all undergraduate students to indicate their standing in courses up to that time and to assist faculty and advisors in providing students the necessary guidance they might require. These mid-semester grades are not recorded on the permanent academic record.

Contested Grades

If a student believes that his/her final grade in a course is not consistent with the grading criteria designated by the course instructor, he or she should first discuss the matter with the course instructor. If the student and the instructor cannot resolve the matter in this discussion, the student may discuss the matter with the department chair. Copies of all graded tests, quizzes, and other assignments will be needed.

In the event that the student is not satisfied with the outcome of the discussions with the course instructor and the chair, he or she may make a written request to the chair for a formal consideration of the problem. This request must be submitted within three weeks after the beginning of the semester immediately following the regular Fall or Spring semester. Included in the request will be an outline of the student’s specific complaints. The chair shall make a detailed investigation and shall notify the student and course instructor of his or her findings. The student may appeal the findings of the chair to the Dean of the school in which the course was offered. The Dean of the school will respond to the student in writing and will preserve the documentation of the process. When the department chair is the course instructor, the student may appeal to the Dean of the school in which the course was taught who will investigate the matter and notify the student and the department chair of his or her findings.

Students should be aware that only the course instructor may change a grade.

Grade Changes

All course grades (except “I” grades) are intended to be final and permanent. It is expected that course instructors will determine and report final grades as accurately and precisely as the nature of the evaluation of student achievement and the grading system will permit. It is considered the instructor’s direct and personal responsibility to insure that grades are fair and reported correctly.

Notwithstanding all precautions, faculty members can make errors. When this occurs, the errors should be corrected so that students are not unfairly penalized. If a course instructor decides to request a grade correction, the appropriate forms must be completed and sent to the Dean of the school in which the course was taught. A copy of the change of grade form will be sent to the Dean of the school where the student is registered. Except in the case of contest-
ed grades, all requests for correcting grades must be submitted by last day of the fourth week of the semester of the following Fall or Spring semester. Only the course instructor can submit a grade change request. The Dean of the school where the course is taught may disapprove of the request, indicating in writing the reason why.

**Incomplete Grades**

An “I” grade indicates that some requirement of a course has not been satisfied by the end of the term. In all cases the incomplete work must be completed and submitted to the instructor not later than 20 days from the last day of the term’s final examination period. The faculty member must submit the final grade not later than 25 days from the last day of the term’s final examination period. An incomplete will be converted to a grade of F if the work is not completed on schedule and if the final grade is not submitted on schedule. Extensions for the completion of the work or the submission of the final grade will be granted by the Dean of the school only in highly unusual circumstances.

**Satisfactory Academic Progress**

All students at Manhattan College are expected to make positive academic progress toward a degree. Students are said to be making satisfactory academic progress when their cumulative grade point average and credit hours fall within the classification system below:

<table>
<thead>
<tr>
<th>Attempted Credits and Transfer Credits</th>
<th>Cumulative Grade Point Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-26</td>
<td>1.8</td>
</tr>
<tr>
<td>27-59</td>
<td>1.9</td>
</tr>
<tr>
<td>60 and above</td>
<td>2.0</td>
</tr>
</tbody>
</table>

**Change of Program**

Students wishing to change their degree program to another program at Manhattan should seek the advice of the Dean or Academic Advisor of the program they wish to enter. The Dean or Academic Advisor will examine the student’s academic record to determine if the desired change in degree program is advisable. Students wishing to change their program should do so before the end of their third semester at Manhattan. Students should take note that no part of their academic record will be altered when they change their degree program. All courses and grades remain on the academic record and constitute the student’s academic history.

**Academic Warning**

Students will be considered to be officially on warning when a statement to that effect has been issued from the Dean’s office noting that there is some indication that the student is experiencing difficulty in maintaining the academic standards necessary for graduation. Such warning will usually include an offer of academic counseling.

**Academic Probation**

The regulations of Manhattan College provide that students are subject to be placed on academic probation when their cumulative grade index falls below the norm for satisfactory academic progress (see above). Students may remove themselves from academic probation by achieving the cumulative grade index consistent with the norms for satisfactory academic progress by the end of the following regular semester. Students on academic probation may be required to take a reduced course load and be restricted from participating in College activities.

**Academic Suspension**

Students are subject to suspension from the College when dismissal is indicated and a judgment is made that a student’s studies at Manhattan should be interrupted for a designated period of time, usually six months or one year, before reinstatement would be considered. Suspended students must present evidence of their ability to continue their studies successfully when applying for such reinstatement.

**Academic Dismissal**

Dismissal is a permanent separation from the College (not just a school of the College), ordinarily imposed when there is indication of poor
probability of academic success. Students may be dismissed from the College if they fail to meet the satisfactory academic progress standards within one semester of being placed on probation or fail to observe the restrictions imposed during probation. Students may also be dismissed from the College when they receive failing grades in all credits attempted in any one semester.

Course Requirements

At the beginning of each semester or session, each instructor is expected in each course to state the objectives of the course, indicate the course requirements, and the criteria to be used in evaluating the performance of students. Each instructor is also expected to announce whether a final examination for the course will be given, and likewise will outline the course requirements and indicate the criteria to be used in evaluating the performance of students.

Credit Hour

Usually, in any semester fourteen lecture periods of fifty-five minutes each or fourteen laboratory periods of two clock hours each normally constitute one credit hour. Any variations from this ruling are indicated in the catalogue description of a course. Examinations, quizzes, scheduled field trips and similar course activities are included within the required periods.

Credit for Off-Campus Courses

The College will normally not accept credit for off-campus courses to fulfill core or major requirements, or for prerequisite or sequential course requirements. Ordinarily, students who have achieved junior or senior status will not be permitted to take courses at two-year junior or community colleges. Credit for courses taken at other institutions by matriculated students of Manhattan College will be recognized under the following conditions: (1) written permission to take such courses is obtained in advance from the Dean of the student’s School, (2) the required form and transcript are filed with the Registrar and the required fee is paid to the Bursar, (3) the grade received at the other institution is equivalent to or higher than the Manhattan College grade of C. Grades earned at other institutions will not be transferred to the student’s record at Manhattan College.

Attendance Policy

Students are required to fulfill all course requirements as detailed in the course syllabus for their registered courses. They will be held accountable for the entire course content including completing all course assignments and attending classes.

All absences from any class period or activity including a laboratory session are considered unexcused absences unless the student completes and submits a Request for Excused Absence Form that is ultimately approved.

After four unexcused absences, the dean of the school in which the student is matriculated shall be notified and the student shall attend an interview to discuss his or her excessive absences. As a result, the student may be referred for counseling, be advised to withdraw from the course, and/or receive a letter or warning if the student’s scholastic record is jeopardized.

Students cannot expect that any makeup tests, quizzes or laboratories will be provided and may incur an appropriate grade penalty for such absences, excused or unexcused. Reasonable accommodations for excused absences are encouraged but are solely at the discretion of the faculty member.

Transcripts

Transcripts must be ordered by letter or in person from the Office of the Registrar. To insure prompt delivery of the transcript, requests should be made at least two weeks before the transcript is desired. The established fee for each transcript is five dollars. No transcript will be issued for students whose accounts are in arrears.

Honors Enrichment Program

The Honors Enrichment Program is open to select students who meet published requirements. It is a co-curricular program designed to allow our honors students a broader range of
experience consonant with their abilities and interests. The program offers opportunities to meet and grow intellectually with students from all five Schools in a wide variety of Honors Symposia offered each year. It also encourages students to explore the cultural riches of New York City and to take advantage of the many other lectures and presentations offered on campus each semester. Each year’s events are organized around a specific theme.

Membership in a wide variety of professional and honorary societies may be earned by students of Manhattan College. These societies include:

- **Alpha Iota Delta**, national honor society for students of decision sciences.
- **Alpha Kappa Delta**, international honor society for students of sociology.
- **Beta Beta Beta**, national honor society for students of biology.
- **Beta Gamma Sigma**, national honor society for students of business.
- **Chi Epsilon**, national honor society for students of civil engineering.
- **Eta Kappa Nu**, national honor society for students of electrical engineering.
- **Gamma Sigma Epsilon**, national honor society for students of chemistry and biochemistry.
- **Kappa Delta Pi**, national honor society for students of education.
- **Lambda Nu**, national honor society for students of training programs in radiological technology.
- **Lambda Pi Eta**, national honor society for students of communications.
- **Mu Kappa Tau**, national honor society for students of marketing.
- **Omega Chi Epsilon**, national honor society for students of chemical engineering.
- **Omicron Delta Epsilon**, national honor society for students of economics.
- **Phi Alpha Theta**, international honor society for students of history.

**Phi Epsilon Kappa**, national honor society for students of physical education and related career fields.

**Phi Sigma Tau**, national honor society for students of philosophy.

**Pi Delta Phi**, national honor society for students of French language and literature.

**Pi Mu Epsilon**, national honor society for students of mathematics.

**Pi Sigma Alpha**, national honor society for students of Political Science.

**Pi Tau Sigma**, national honor society for students of mechanical engineering.

**Psi Chi**, national honor society for students of psychology.

**Sigma Delta Pi**, national honor society for students of Spanish language and literature.

**Sigma Iota Rho**, national honor society for students of international studies.

**Sigma Pi Sigma**, national honor society for students of physics.

**Sigma Tau Delta**, national honor society for students of English language and literature.

**Tau Chi Alpha**, national honor society for students of environmental engineering.

**Tau Sigma Kappa**, Manhattan College Honor Society for Computer Science.

**Theta Alpha Kappa**, national honor society for students of Religious Studies.

### Major National Honor Societies

Manhattan College hosts chapters of the major national honors societies: Phi Beta Kappa in the liberal arts, Sigma Xi in pure and applied scientific research, and Tau Beta Pi in engineering. Manhattan College is one of only four undergraduate institutions to host chapters of all three.
Scholastic Honors

Epsilon Sigma Pi Honor Society.
Membership in this Society is the highest scholastic honor for which undergraduates of all programs of the College are eligible. Induction into this Society requires a cumulative scholarship index not less than 3.50. The following conditions for membership are applicable:

1. Students shall have completed six semesters with no fewer than 90 credits (including transfer credit, transient off-campus course credit, study-abroad credit, AP credit, CLEP credit, articulation or link-program credit).

2. Transfer students have the requisite index for the number of semesters completed at Manhattan College and have the same or higher index at all other colleges or universities attended prior to matriculation at Manhattan College. Students who have transferred from a country with a different grading system will have their transcripts reviewed by the Dean to determine that the requisite index at prior institutions was achieved.

3. Students may have no Ds or Fs on their transcripts from either Manhattan College or from any other colleges or universities attended prior to matriculation at Manhattan College.

4. Admission for Fall Honors Convocation shall be granted according to the following sliding scale of GPA based on the number of semesters in residence completed at Manhattan College:
   - 6 semesters at Manhattan 3.5
   - 5 semesters at Manhattan 3.6
   - 4 semesters at Manhattan 3.7
   - 3 semesters at Manhattan 3.8
   - 2 semesters at Manhattan 3.9

5. At graduation, all students with a GPA of 3.5 or better who have fulfilled conditions 1-3 listed above shall be inducted into Epsilon Sigma Pi.

6. Under unusual circumstances, a student who does not meet at graduation the above conditions but who seeks nomination to Epsilon Sigma Pi may petition the Provost for special consideration. The Provost shall convene a meeting of the Deans to consider the special application. Their decision shall be final.

Dean’s Honor List. Students who complete a minimum of 12 credits in a Fall or Spring semester with a minimum grade point average of 3.40 with no course failures will be placed on the Dean’s Honor list.

Graduation With Honor. Honors are awarded based on the following cumulative indexes:
- 3.90-4.00 Summa Cum Laude
- 3.60-3.89 Magna Cum Laude
- 3.40-3.59 Cum Laude

Transfer students from other institutions are eligible for graduation honors if one half of the course credits for their degree are earned at Manhattan College. The required index for graduation honors will be based upon all course credits attempted at Manhattan College.

Students transferring from one program of the College to another are eligible for graduation honors. In calculating the required index for graduation honors, all course credits attempted at Manhattan College will be included.

Medals and Prizes

The following medals and prizes are awarded annually:

The Donald J. Carty Valedictory Medal. Donated by faculty friends in memory of Dr. Donald J. Carty, Professor of Speech at Manhattan College. Awarded to the valedictorian of each graduating class.

The Medal for Excellence in the Liberal Arts. Founded by Joseph R. Holahan in memory of his brother, Major William V. Holohan of the class of 1925.

The Mendelian Medal for Biology. Founded in memory of Dr. James G. Robilotti of the class of 1922.
The Florence and Clarence Batt Medal for Biochemistry. Founded by the Batt family in honor of their parents.

The Medal for Chemistry. Established by the Student Affiliate of the American Chemical Society.

The John Vincent Mahony Medal in Chemistry. Founded by his sons, Brian, Kevin, and John, in memory of their father. This medal is awarded for scholarship and dedication in the study of chemistry that foretokens fundamental contributions to that science in the future.

The Medal for Communications. This medal is awarded for academic excellence in Communications studies.

The Brother John McNamara Medal for Computer Science. Founded in 1985 by the faculty and former students of the Department of Mathematics and Computer Science in honor of Brother John McNamara in recognition of his efforts to bring Computer Science into the undergraduate curriculum.


The Paul Cortissoz Award for English Literature. Founded by family and friends in memory of Dr. Paul Cortissoz ’47; faculty member 1949-1989.


The Harry J. Blair Memorial Medal for Renaissance Literature. Founded in honor of Harry J. Blair, class of 1950; faculty member 1957-1976.

The Brian S. Broderick Medal. Founded in memory of Brian S. Broderick, Class of 1982, by his parents Michael and Mary Broderick, for award to a graduating senior who has conveyed through writing of distinction an understanding and appreciation of literature.

The Brother Andrew O’Connor Medal for French. Founded in 1998 by the members of the Sigma Beta Kappa Fraternity in memory of their Founding Moderator. This medal is awarded for excellence in the study of French and French literature.


The Dorothy Nealy Sullivan Medal for International Studies. Founded in 2006 in memory of Dorothy Nealy Sullivan by alumni, friends, and family. The medal is awarded annually to the top graduating major in International Studies who has achieved a minimum of 3.5 overall GPA with no grades of D or F.

The Harold E. Hazelton Humanities Medal. Founded in honor of Harold E. Hazelton, class of 1951; faculty member 1957-1985. The medal will be awarded to the graduating senior who has manifested a deep commitment to the humanities and has made a significant contribution to the life of the college in the spirit of Harold E. Hazelton.

The Frederick Mortati Medal for Italian. Founded by Mrs. Frederick Mortati in memory of her husband.

The Pope John XXIII Peace Studies Medal. Founded by Mrs. Robert Beardsley in memory of her parents, Michael and Luisa Pecora. This medal is awarded for excellence in Peace Studies.

The Brother Gabriel Kane Medal for Physics. Donated by Physics Alumni.

The Broderick Medal for Psychology. Founded by Most Reverend Edwin B. Broderick, D.D., Ph.D., and John M. Broderick of the class of 1935 in honor of their father, Patrick J. Broderick.


The Sigma Xi Medal for Research in Science. Donated by the Manhattan College Sigma Xi Chapter.


The Cristina R. Toosie Medal for Spanish Studies. Founded by Mrs. Thomas A. Toosie. This medal is awarded for excellence in the study of Spanish language, literature, and culture.

The Draddy Medal for General Excellence in Engineering. Founded in memory of Daniel Anthony Draddy of the class of 1913 and of Robert Emmet Draddy.

The Brother Amandus Leo Call Engineering Medal. Founded by Robert N. Pucci, class of 1940, and Margaret R. Pucci, M.D. Awarded annually to a graduating senior for distinguished leadership in academic, co-curricular and extra-curricular activities in Engineering. The winner of this medal is the student marshal for Engineering at the May Commencement.

The Prutton Medal for Chemical Engineering. Founded in honor of Dr. Carl F. Prutton by his friends.

The Brother B. Austin Barry Medal for Civil Engineering. Donated in honor of Brother B. Austin Barry, F.S.C. upon his retirement after forty-five years as a member of the faculty of Civil Engineering. This medal is to be awarded to a student for assiduity and competence in Civil Engineering and a spirit that bodes well for a future as a Civil Engineer.

The John F. Hoban Medal for Civil Engineering. Founded by friends in memory of John F. Hoban, class of 1951.

The Brother Azarias Michael Medal for Civil Engineering. Donated by the Civil Engineering Department in memory of Brother Azarias Michael, F.S.C.

The Florence P. Wojtaszek Medal for Computer Engineering. Given in memory of one who worked with the IBM Group, which wrote the first Fortran program.

The Medal for Electrical Engineering. Founded by Thomas R. Finn of the class of 1933 in honor of his mother, Mrs. Mary Finn.

Lawrence Eckenfelder Award for Environmental Engineering. Donated by the friends and family of W. Wesley Eckenfelder in memory of his son to recognize an outstanding undergraduate student in Environmental Engineering.

The Brother Aubert Medal for Mechanical Engineering. Founded by Phi Kappa Theta Fraternity in memory of Brother Aubert of Jesus, F.S.C.

The Prize for Accountancy. The New York State Society of Certified Public Accountants Superior Scholarship in Accounting Award.

The Brother Cornelius Justin Brennan Medal. Founded by Thomas J. Wright, Professor Emeritus of Managerial Sciences. Awarded to a graduating senior from Business in recognition of distinguished performance in academic and in co-curricular and/or extra-curricular activities.

The Edward Dougherty Medal for Business. Donated by Beta Sigma Fraternity in memory of Edward Dougherty of the class of 1928.
The Professor William P. Cain Medal for Computer Information Systems. Founded by the students and alumni of Business in tribute to Brother J. Anthony Flynn who established the program endowed by a gift from James Suarez, Dean of Business.


The Captain Frederick J. Finn Medal for Finance. Founded by Thomas R. Finn of the class of 1933 in memory of his brother, Captain Frederick J. Finn.

The Dean James L. Fitzgerald Medal for Managerial Sciences. Founded by the Faculty of Manhattan College in memory of Dr. James L. Fitzgerald, the first Dean of the School of Business, who served in that capacity from 1926 to 1962.

The Medal for Marketing. Donated by the Sales Executives of New York.


The Brother A. James Norton Medal for Education. Founded by the late Frank and Catherine Norton in honor of their son, Brother Adelbert James Norton, ’40, professor and dean for many years in the School of Teacher Preparation.

The John S. Sich Medal for Physical Education. Founded by former students of Professor John S. Sich in honor of his 35 years of service to Manhattan College.

The Paul R. Simon Medal for Radiological and Health Sciences. Founded by Louis C. Simon in memory of his son, Paul R. Simon, a member of the first class of the Radiological Institute of Manhattan College.

The David C. Broderick Medal for Campus Ministry. Founded by David C. Broderick of the class of 1907 in memory of his son, David C. Broderick, Jr., of the class of 1939. Awarded to a graduating student for distinguished service to the Campus Ministry.

The Joseph J. Gunn Alumni Medal. This medal, awarded annually, is merited by the graduating senior who has been prominently involved in leadership activities over a period of four years at Manhattan College. Established in memory of Joseph J. Gunn, ’30, by his family.
TUITION AND FEES

The uncertainty of present-day costs makes it necessary for the College to reserve the right to increase tuition and fees whenever necessary. In applying for admission, students and their families should anticipate future annual increases. Such changes will be formally announced in advance.

Undergraduate Tuition and Fees 2008-2009

A. Full Time Students, 2008-2009
Full time students register for 12 or more credits per semester.

<table>
<thead>
<tr>
<th>Tuition Charges per Semester</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshmen</td>
<td>$11,470.00</td>
</tr>
<tr>
<td>Sophomores</td>
<td>$11,470.00</td>
</tr>
<tr>
<td>Juniors</td>
<td>$11,470.00</td>
</tr>
<tr>
<td>Seniors</td>
<td>$11,470.00</td>
</tr>
</tbody>
</table>

Program Fees per Semester
<table>
<thead>
<tr>
<th>Program</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts, Education</td>
<td>$500.00</td>
</tr>
<tr>
<td>Business, Science</td>
<td>$600.00</td>
</tr>
<tr>
<td>Engineering</td>
<td>$950.00</td>
</tr>
</tbody>
</table>

Overcredit Charges* per credit hour
*See section on Overcredits for more detail

B. Part Time Students, 2008-2009
Part time students in day, evening or special (January and Summer) sessions register for less than 12 credits per semester.

<table>
<thead>
<tr>
<th>Tuition Charges per Credit Hour</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>$650.00</td>
<td></td>
</tr>
</tbody>
</table>

C. Room and Board Fee, per Semester, 2008-2009
Room and Board Standard Room Occupancy with the following plans:
<table>
<thead>
<tr>
<th>Plan</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ultimate Plan</td>
<td>$5,055.00</td>
</tr>
<tr>
<td>19 meal plan*</td>
<td>$4,885.00</td>
</tr>
<tr>
<td>15 meal plan</td>
<td>$4,780.00</td>
</tr>
</tbody>
</table>

*Mandatory plan for all incoming freshman.

D. One-Time Fees

<table>
<thead>
<tr>
<th>Fee</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application</td>
<td>$50.00</td>
</tr>
<tr>
<td>Student Acceptance Deposit</td>
<td></td>
</tr>
<tr>
<td>(Credited toward Matriculation)</td>
<td></td>
</tr>
<tr>
<td>Commuter</td>
<td>$300.00</td>
</tr>
<tr>
<td>Resident</td>
<td>$700.00</td>
</tr>
<tr>
<td>Resident deposit includes Dormitory Damage Deposit</td>
<td>$300.00</td>
</tr>
<tr>
<td>Graduation</td>
<td>$275.00</td>
</tr>
<tr>
<td>(Charged upon achieving Senior status – 90 credits)</td>
<td></td>
</tr>
<tr>
<td>Matriculation</td>
<td>$250.00</td>
</tr>
</tbody>
</table>

E. Other Fees

<table>
<thead>
<tr>
<th>Fee</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-matriculation — per registration</td>
<td>$150.00</td>
</tr>
<tr>
<td>English as a Second Language</td>
<td>$725.00</td>
</tr>
<tr>
<td>Orientation (Student)</td>
<td>$155.00</td>
</tr>
<tr>
<td>Returned Check</td>
<td>$75.00</td>
</tr>
<tr>
<td>Student Activity — per semester</td>
<td>$190.00</td>
</tr>
<tr>
<td>Student Accident Insurance — per year</td>
<td>$65.00</td>
</tr>
<tr>
<td>Physical Education Summer Camp</td>
<td>$925.00</td>
</tr>
<tr>
<td>Transcript — per copy</td>
<td>$5.00</td>
</tr>
<tr>
<td>Off-Campus Course</td>
<td>$115.00</td>
</tr>
<tr>
<td>Telecommunications (Resident) — per semester</td>
<td>$205.00</td>
</tr>
<tr>
<td>Telecommunications (Non Resident) — per semester (undergraduate)</td>
<td>$225.00</td>
</tr>
<tr>
<td>Room Reservation Deposit</td>
<td>$400.00</td>
</tr>
<tr>
<td>(advanced each Spring term to secure place in dorm)</td>
<td></td>
</tr>
</tbody>
</table>
STUDENT FINANCIAL SERVICES – POLICIES AND PROCEDURES

Payment Responsibilities and Agreement Notice

Enrolled students agree to be in accordance with all policies and procedures related to their financial obligation to the College. The enrolled student assumes liability for any debt incurred during his/her attendance at Manhattan College including late payment penalties and all legal and/or collection costs related to the efforts to collect a past due balance. The terms of payment, withdrawal and adjustment set forth in this catalog are incorporated upon enrollment.

Students are required to notify in writing to the College any change in address or other contact information. All changes in billing address must be provided immediately in writing even after such time as a student completes his/her program and has loans outstanding to the school. Failure to comply with the policies on address changes that result in the loss or delay of contact are the sole responsibility of the student.

Payment to the College is always the responsibility of the student regardless of the source of funding for tuition. Inquiries regarding accounts receivable and/or cashiering can be directed to the Office of Student Financial Services by phone at (718) 862-7100 or e-mail finaid@manhattan.edu

Account access is available at http://self-service.manhattan.edu with a valid student ID number and PIN. Students can view their billing account detail transactions and up-to-date account balances. Other student information services available to view via self service include financial aid awards, class schedules, grades, unofficial transcripts, and personal information such as address, phone number and e-mail address.

Safeguarding Policy

This is an official notice of Manhattan College’s policy regarding the safeguarding of customers’ information established by the Federal Trade Commission (FTC). Manhattan College is subject to the provisions of the Gramm-Leach Bliley Act (GLBA, 16 CFR 314) which recognizes the College and other higher education institutions as a financial institution.

Manhattan College adheres to very strict privacy and safeguarding rules, keeping sensitive information safe. Manhattan College is in compliance with specific requirements related to the administrative, technical and physical safeguarding of customer information. Manhattan College also requires its service providers to implement and maintain such safeguards.

Tuition Liability for Fall and Spring Terms

Students who have satisfied their current account for the term will be eligible for online pre-registration for the upcoming term. Billing invoices with a tuition deadline date will be mailed to students in early July for the Fall term and by mid-December for the Spring term. Follow-up invoices for outstanding balances may continue monthly thereafter, but it is the student’s responsibility to access Self Service for account updates. No student will be permitted to enroll for an academic term until all outstanding accounts with the College have been satisfied. Liability for tuition and fees is not contingent on completing courses, course attendance, receiving grades, receiving passing grades or status of financial aid awards.

Registration/Payment for Intersession Terms

Without exception, in order to enroll for an intersession term (January/Summer), payment must accompany a request for registration or be provided in advance. There is no option to pre-register without prepayment.
Payment of Tuition and Fees

Acceptable forms of payment are cash, personal check, bank check, money order, credit card, and bank wire. Checks must be payable to Manhattan College. The student’s identification number should be included on all payments. The College reserves the right to dictate form of future payments in cases where insufficient funds are presented and/or in cases of continued delinquent account status. Payment can be made in person at the Bursar’s Office in Miguel Hall, Room 100 or mailed. The College accepts MasterCard, Visa, Discover and American Express credit cards. Secure, online credit card payments may be processed via the web at http://self-service.manhattan.edu

Payment Penalties

Students can avoid late fees by paying their tuition and fees by the published deadline. A late penalty of 1% of the outstanding balance of any student account will be assessed at the end of each month until the account is settled. Accounts not paid in full may be referred to a collection agency, which can result in additional collection and/or legal costs.

Indebtedness to the College may automatically terminate current enrollment and indefinitely suspend future enrollment. Students may also be barred from online account access, receiving grade reports, parking decals, transcripts, and participating in commencement until all accounts have been paid.

Policy on Returned Checks

If for any reason a check does not clear for payment a penalty of $75 is charged to the student’s tuition account. Payment for the amount of the returned check and the $75 return check fee must be paid immediately by cash, credit card, certified bank check or money order. Another personal check will not be accepted. Please note: The College also reserves the right to request that future payments be made in form of cash, credit card, certified bank check or money order. The College also reserves the right to reject or deny enrollment for a particular term due to payment with insufficient funds.

Monthly Budget Plan

Manhattan College partners with Tuition Management Systems (TMS) to offer a yearly, comprehensive monthly installment plan (Fall & Spring only) for matriculated students enrolling in at least 6 credit hours per semester. For more information, you can contact TMS at 800-343-0911 or www.afford.com. You may also contact the Office of Student Financial Services for more information.

Employer Deferment

Students expecting reimbursement from their employer may defer payment of tuition and applicable fees upon approval of our Application for Deferral. Upon approval, a student’s account is charged the deferral fee (listed on application) and any portion of tuition/fees not covered by the employer will be payable in advance. The application will require certification of the employer’s reimbursement on company letterhead. Please contact the Office of Student Financial Services for the current terms and fees and to seek eligibility for a regular student deferral if there is no employer reimbursement.

Student Deferment

Students who are unable to make full payment by the payment deadline are encouraged to apply for a student deferment. If approved, a deferment can extend your tuition payment deadline by six to eight weeks. Applications must be filed by the deadline date. The cost of a deferral is $100 (subject to change) which is charged to the student account and payable immediately. The deferment fee and extended deadline will be listed in the signed and approved application.

Overcredit Charges

Students who exceed the annual (Fall and Spring) number of credits listed under the current degree requirements in their field of study for their class status will be charged at the per credit tuition rate for the school in which they are registered. Course requirements for each year by field are listed in the Manhattan College catalogue. Academic Advisors are available to
help students with course selection but they are unable to advise students on overcredit charges nor give a reminder and/or warning of the College’s overcredit policy.

Students on full or partial scholarships are not exempt from overcredit charges if they take credits in excess of those prescribed in a particular academic year for the regular full-time program outlined in the catalogue.

Schedule Changes

Students who make changes to their academic schedules [withdraw from a class(es)] may result in:

1. Recalculation of financial aid for that semester and/or future semester.
2. TAP decertification (loss of TAP grant).
3. Student’s course load in future semesters may be increased resulting in overcredit charges, or requiring the student to take courses during the summer or intersessions both at additional cost.

Refund and Liability Policies

If a student withdraws from a term, takes a leave of absence after the start of term, or is dismissed from Manhattan College, then the school may be required to return all or some portion of federal funds awarded to the student. The student may be eligible for a refund for a portion of the tuition, fees, and room and board paid to the College depending on the refund/liability schedule and the determined official withdrawal date. Student must complete an official “Withdrawal from College” form.

Failure to attend class and/or failure to notify the Office of the Dean and Office of the Registrar does not constitute an official withdrawal. Also, failure to make or complete payment does not constitute official withdrawal. Students who never attend or stop attending classes and fail to file the official paperwork mandated by College policy are responsible for 100% of tuition and fees.

Official Date of Withdrawal

The date used for refund/liability purposes will be the date that the paperwork was completed, not the last date of attendance. Drops or withdrawals received by mail will be effective as of the official postmarked date.

Obligation to Outside Funding Sources upon withdrawal

If a student received financial assistance from an outside agency then some portion of the refund may have to be returned to the issuing grant/scholarship agency or lender. Students who receive Federal Title IV finds will be subject to the refund policy listed in that section.

Adds, Drops and Withdrawals from Individual Courses

Adds/Drops and Withdrawals from individual courses must be officially requested with proper forms and processed by the Office of the Dean and the Office of the Registrar. No add/drop of courses will be permitted after the published and posted deadlines.

Add/Drops processed during the published dates (usually the first calendar week of the term) will qualify for a schedule change which may affect tuition and fee charges. After the deadline, withdrawal from a course is the only option for a student. In this case, a student is liable for tuition in accordance with his/her original enrollment at the end of the add/drop period. There is no refund made to students who withdraw from an individual course(s).
Refund of Tuition/Liability of Tuition

Refund of tuition charges and program fee only will be made in accordance with the following schedule:
During the 1st week..................100% refund   no liability
During the 2nd week ...............80% refund      20% liability
During the 3rd week...............60% refund      40% liability
During the 4th week..............40% refund      60% liability
During the 5th week..............20% refund      80% liability

After Week 5 there is no refund, and 100% liability of tuition and fees.

Room and Board Liability

Charges will be prorated per calendar week up to 6 weeks, as authorized by the Office of Residential Life.

Adjustment of Institutional Aid

The College’s refund policy exists for calculating liability for institutional tuition charges. Therefore, if any charges are prorated as a result of voluntary or involuntary withdrawal, the College must in turn prorate any institutional grants based on the percentage charged to the student as listed in the above policy.

Circumstances for Appeal

Voluntary and involuntary withdrawals or leaves of absence will be subject to the refund/liability schedule as listed in this catalog. Since the College incurs the cost of a student’s enrollment, specific circumstances that pertain to the withdrawal will not be considered for review except in cases of terminal illness or death of an immediate family member. Appeals of only these two severe cases can be forwarded to the Bursar.

Return of Title IV Funds

Manhattan College is required by federal and state regulations to make known the federal formula for the return of federal funds. The federal formula requires a return of Title IV aid if the student received federal aid assistance in the form of a Federal Pell Grant, Federal SEOG Grant, Federal Stafford or PLUS loans or Federal Perkins loan and withdrew on or before completing 60% of the semester. The percentage of Title IV aid to be returned is equal to the number of calendar days remaining in the semester divided by the number of calendar days in the semester. Scheduled breaks of more than four consecutive days are excluded.

Refunds of Credit Balances are subject to the review of the Office of Student Financial Services and will be issued when the credit amount actually exists on the student’s account and a request is made in person or in writing. Credit balances resulting from excess payments will be refunded to the student’s name unless otherwise authorized by the student. If a refund is not requested, future enrollment is assumed and the credit balance will remain on the student account to help offset future charges. Credit balances resulting from scholarships and financial aid, including federal and state programs and alternate loan programs are subject to specific guidelines and approval of a financial aid counselor or Director of Financial Aid and the Bursar.

Processing of Refund Checks will take 10 to 15 business days. Checks will be mailed to the current home address on our system unless otherwise authorized in writing by the student. Students may request to pick up refund checks in person with a valid photo ID.
FINANCIAL ASSISTANCE

Financial Assistance to Students

Manhattan College provides the maximum financial aid available to qualified students to make their attendance at Manhattan financially possible.

To this end, the College administers a wide range of scholarship and financial aid programs designed to enable the student to pursue his/her studies to graduation. The basis of selection is ability and/or need. Students are advised that program guidelines and funding levels, especially State and Federal, are subject to change without enough advance notice to be corrected in this publication.

All financial aid is renewable on a yearly basis provided the student remains eligible; i.e., files the FAFSA by April 15th, is enrolled in a matriculated program, is in good academic standing and continues to demonstrate need (for need based aid). Please check scholarship requirements listed under each type of scholarship.

Meeting the complete costs of college, however, usually requires a cooperative effort from several possible sources of funds: student and family, Manhattan College, state and federal government agencies and independent sources of aid. Manhattan College attempts to meet a significant portion of need but is unable to meet full need due to financial limitations.

Application Procedures

Students who wish to apply for any type of need based financial assistance through Manhattan College must file a Free Application for Federal Student Assistance (FAFSA 002758) as early as possible after January 1st preceding the academic year for which they wish to be considered for aid. Incoming freshmen should file by February 15th to ensure timely handling of their admissions application. FAFSA applications are no longer made available by the Department of Education, therefore, families must file on the web at: www.fafsa.ed.gov. Continuing students must file by the April 1st deadline and filing with completed federal taxes is recommended. Financial aid will be awarded on a “first time first serve basis” after that time. Applications received after April 30th may be subject to a 20% reduction or possible cancellation of any need based institutional aid.

The Federal Student Aid Program performs a needs analysis service which computes the family contribution toward educational costs. Manhattan College then determines financial need based on the total cost of attendance at the college. The cost of attendance includes tuition and fees, room and board (even if a student will commute an allowance is given for room and board at home), books, transportation and personal expenses. The Student Financial Services Office deducts the family contribution as determined by the FAFSA from the Total Cost of Attendance to arrive at a family financial need. All attempts are made to help fill this need (also known as the Gap) with a combination of gift (scholarships and grants from Manhattan College, federal and state grant programs and outside scholarships), loans (Federal Stafford and Perkins) and work programs (College Work Study and Campus employment).

Award Letters

Applicants will be advised of all possible awards via a Financial Aid Award Letter when all pertinent forms and applications are complete. Award letters are sent out to incoming applicants on a rolling basis. Students already in attendance will begin to receive their Award Letters in late June or July.

The financial aid awards on your award letter are “estimated.” A financial aid award may be reduced or cancelled. The most common reasons for an award adjustment include changes in enrollment (change to part-time status, residency status, not maintaining Satisfactory Academic Progress, or over-awards due to receipt of additional aid and/or scholarships from other sources. An award may also be adjusted due to changes or inaccuracies in the information on which your award is based. If your financial aid has been disbursed, you may be responsible for partial or full repayment of funds regardless of the reason for the adjustment.
Students are advised to visit the Student Financial Services Office to discuss any changes in family circumstances. A student should never withdraw from a class or a semester without visiting the Student Financial Services to discuss the impact on future financial aid.

**Manhattan College Programs**

**Institutional Assistance:** All forms of institutional assistance (such as scholarships, awards, grants, need grants, athletic awards) are awarded under the assumption of full-time enrollment and residency status requested at the time of the admissions application. A change in residency status may change the amount of institutional funds awarded. It is suggested that students review their intent to change residency status with Admissions (for first-time students) and Student Financial Services (continuing and all students) to discuss possible changes in their award letter. Institutional awards and/or assistance of any type may be subject to reduction if the total of all institutional aid exceeds the total cost of tuition and fees charged to the student account.

**Presidential Scholarships:** Non-need based scholarships awarded to extraordinary applicants. Eligibility is based on exceptional SAT or ACT scores, secondary school grade point average, and rank in class. The amount of the Presidential Scholarship is determined at the time of admission and is offered for four years (eight semesters maximum) provided the student remains eligible. Overcredits, most study abroad courses, intersession and/or summer courses are not included in the scholarship. A Presidential Scholarship recipient is entitled to one, pre-approved leave of absence. Presidential Scholarships are awarded only for full time enrollment (12 or more credits).

**Dean’s Award:** Dean’s Awards are offered to academically gifted students who fall slightly below Presidential Scholarship requirements. Financial need is not a pre-requisite for eligibility. The amount of the Dean’s Award is determined at the time of admission and is offered for four years (eight semesters maximum). Overcredits, most study abroad courses, intersession and/or summer courses are not included in the scholarship. A Dean’s Award recipient is entitled to one, pre-approved leave of absence. Dean’s Awards are awarded only for full time enrollment (12 or more credits).

**GPA Requirements for Dean’s Award and Presidential Scholarship**

A student must maintain an overall GPA of 3.0 for renewal of their academic scholarship. If the GPA falls below a 3.0 then the renewal amount will be based upon the chart below.

<table>
<thead>
<tr>
<th>GPA</th>
<th>Renew Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.0</td>
<td>100%</td>
</tr>
<tr>
<td>2.9</td>
<td>“Probation”</td>
</tr>
<tr>
<td>2.8-2.899</td>
<td>80%</td>
</tr>
<tr>
<td>2.7-2.799</td>
<td>60%</td>
</tr>
<tr>
<td>2.6-2.699</td>
<td>40%</td>
</tr>
<tr>
<td>2.5-2.599</td>
<td>20%</td>
</tr>
<tr>
<td>Below 2.5</td>
<td>0%</td>
</tr>
</tbody>
</table>

The preceding chart is subject to change. If such a change occurs, it will be formally announced in advance.
Need Programs

Grants-in-Aid: Manhattan College awards grants-in-aid to accepted students who demonstrate financial need. As with all types of grant aid, these awards are renewed annually and adjusted in line with changes on the FAFSA. These awards are given for a maximum of four years (eight semesters). Grant recipients must maintain satisfactory academic progress. Full time enrollment is necessary to receive grant.

Campus Employment Program: Manhattan offers its own campus work program to students who need employment to meet college expenses. Work opportunities depend upon a student's qualifications and experience and the hourly rate is based upon the type of work performed. Full-time students are permitted to work a maximum of fifteen hours a week while classes are in session and up to thirty-five hours a week during vacation periods and summer months. Students receiving full tuition and fees scholarships or grants from Manhattan College are ineligible during any time period when their benefits are in effect. Students must complete a financial aid form FAFSA each year to be eligible for Campus Employment. Students’ total aid including campus employment may not exceed the total cost of attendance.

Athletic Grants: Manhattan College has available a strictly-budgeted fund to offer grants-in-aid to students who, by the possession of certain athletic skills can add to the community spirit and morale of the campus. The College firmly states that recipients must come to Manhattan as students, with their first interest in studies. They must meet the same entrance requirements as other students and must maintain satisfactory academic progress. Manhattan adheres to and endorses the principles and policies of the Eastern College Athletic Conference and the National Collegiate Athletic Association.

ENDOWED AND SPECIAL CATEGORY SCHOLARSHIPS

Scholarships for 1st Year Students

Liberal Arts:

Archbold Charitable Trust Scholarship: Founded in 1991 by a gift from The Adrian and Jessie Archbold Charitable Trust to provide tuition assistance to undergraduate students enrolled in the School of Arts who demonstrate high scholastic achievement and who have financial need.

The Anna Bendernagel Memorial Scholarship: Founded in 2005 by James ’73 and Alicia Bendernagel to provide tuition assistance to women majoring in history who demonstrate financial need.

The Brian S. Broderick ’82 Memorial Scholarship: Founded in 2001 by Mary and Michael Broderick in memory of their son. Financial aid will be provided to deserving undergraduates majoring in English and World Literature or in History who are in need of tuition assistance to complete their degree programs.

The Brother James X. Collins Memorial Scholarship: Founded in 1993 by the family and friends of Brother James X. Collins, Lasallian teacher, scholar and tireless worker for Manhattan College, for the people of East Africa and for peace and justice. Tuition assistance will be provided to undergraduate students enrolled in the School of Arts who demonstrate high scholastic achievement and who have financial need.

The Don Dunphy ’30 Memorial Scholarship: Founded in 1999 by the family of Don Dunphy, broadcasting hall-of-famer, to assist undergraduates majoring in communications.

The Mary Fennelly Scholarship: Founded by Leo C. Fennelly, Class of 1919, in memory of his mother.
The Josephine and Dominic Laruccia Scholarship: Founded in 1999 by Stephen D. Laruccia ’67, in honor of his mother and in memory of his father to provide tuition assistance to academically qualified and deserving students enrolled in the School of Arts who have unmet financial need.

The James J. Lee, Jr. Scholarship: Established by the family of James J. Lee, Jr. The award of a four-year scholarship will be open to a student majoring in the Liberal Arts. Continuation of the scholarship requires that the student remains in good academic standing.

The Brother Andrew O’Connor Memorial Scholarship: Founded in 1998 by the members of Sigma Beta Kappa Fraternity in memory of their Founding Moderator to provide tuition assistance to undergraduates enrolled in the School of Arts who are majoring in the humanities and who have financial need.

Science:

The Angelo-Charles Castelli Memorial Scholarship: Founded in 2000 and funded by The Barbariga Institute in memory of Angelo-Charles Castelli and in recognition of the educational vision of Angelo Dalle Molle, founder of The Barbariga Institute, San Pietro di Strà, Venezia, Italy. Financial aid will be provided in equal amounts to deserving undergraduates who are enrolled in the pre-medical program of the School of Science and in the School of Engineering and who are in need of tuition assistance to complete their degree programs.

Business:

The Brother Francis Charters Memorial Scholarship: Founded by William P. Twomey of the class of 1967 in memory of Brother Francis Charters, Dean of the School of Business from 1961–66.

The Dean James L. Fitzgerald Scholarship: Founded by Alumni and students of Business of Manhattan College and friends of Dean James L. Fitzgerald.

The Forster Educational Foundation Scholarship: Founded in 1993 by The Forster Educational Foundation to provide tuition assistance to students with unmet financial need who are enrolled in an undergraduate program leading to a degree in accounting.

The Emmett P. Lynch ’66 Scholarship: Founded in 1998 by Emmett P. Lynch ’66 to provide tuition assistance to permanent residents of New York City who are enrolled in the School of Business and who have need of financial aid.

The Edward P. Lyons Phoenix Memorial Scholarship: Founded in 1999 by the family and friends of Edward P. Lyons of the class of 1950. Preferential consideration will be given to graduates of Cardinal Hayes High School, Bronx, NY.

The McGloine-Weidl Scholarship: Founded in 2006 by bequest to benefit needy students enrolled in the school of business.

The Virginia Casey O’Brien Memorial Scholarship: Established in 1997 by David J. O’Brien ’47, members of the O’Brien family and friends of Virginia Casey O’Brien in recognition of her interest and achievements in the promotion of women’s participation in business and athletics. Available to women in need of tuition assistance who have participated in secondary school athletics and extra-curricular activities, who are commuting from home to Manhattan College and who are enrolled in a degree program in the School of Business.

Education:

The Rose E. and Margaret A. Scala Scholarship: Founded in 2007 by Anthony J. ’75 and Mary Ellen Scala provides tuition assistance to students enrolled in the School of Education who are pursuing a career in secondary school math or science education.

Teacher Preparation Financial Aid Program: Responding to the national challenge to improve both elementary and secondary levels of education, this program was established by the College to attract academically gifted students into the teaching profession.
program continues Manhattan College’s long tradition of preparing young people, especially those of modest means, for careers as teachers. It has been funded in part by a grant from the C.V. Starr Foundation as a memorial to their founder, the late Cornelius Vander Starr.

**Engineering:**

**The Alexander Bette ’31 Civil Engineering Scholarship:** Founded in 2000 by Michael F. Bette in memory of his father to provide tuition assistance to deserving minority students enrolled in the civil engineering degree program who are graduates of New York City secondary schools.

**The Richard M. and Virginia T. Collins Scholarship:** Founded in 1993 by Richard M. Collins ’44 and Virginia T. Collins to provide tuition assistance to undergraduate engineering students who demonstrate high scholastic achievement and who have financial need.

**The Thomas Alva Edison Scholarship:** Founded by the Consolidated Edison Company for minority undergraduate engineering students who are resident in the company’s service area.

**The Raymond J. Hodge Memorial Scholarship:** Founded in 2000 by Lorraine Hodge Fox and Arthur J. Fox ’47 in memory of Raymond J. Hodge ’44 to provide tuition assistance to deserving students enrolled in the civil engineering degree program.

**The Fergus C. Kennedy Memorial Scholarship:** In memory of Fergus C. Kennedy, United States Army, killed in action in October 1944. Established in 1997 by his friends from the freshman class of September 1941 and the Kennedy family. Available to male engineering undergraduates in need of tuition assistance who have participated in secondary school athletics, who are active in support of their chosen religion, and who commute from home to Manhattan College.

**The Robert J. Logan Scholarship:** Available to students enrolled in the School of Engineering who have demonstrated need.

**The John J. McDonnell, Jr. Scholarship:** Founded in 1997 by John J. McDonnell, Jr. ’59 to provide full tuition assistance, academic program fees and full room and board costs to graduates of Regis High School, New York, NY who are enrolled in the School of Engineering.

**The Moles Scholarship:** Founded in 1998 by members of The Moles to provide tuition assistance to deserving students enrolled in the degree program in Civil Engineering.

**The Patrick F. O’Leary ’58 Scholarship:** Established in 2003 by his wife and children in memory of Patrick F. O’Leary ’58 to provide tuition assistance to needy students enrolled in the Civil Engineering degree program.

**The Thomas B. Zoppo Scholarship:** Founded in 1997 by the family of Thomas B. Zoppo. Tuition assistance will be provided to deserving students who are enrolled in a degree program in the School of Engineering and who have unmet financial need. Preference will be given to residents of the New England states.

**General:**

**The ABCO Peerless Sprinkler Corporation Scholarship:** Founded in 1998 by William G. Bowe ’51 and Timothy W. Bowe ’81. Tuition assistance will be provided to students electing to concentrate in Catholic Studies who are in need of financial aid.

**The Carol and Michael Joseph Bernard Scholarship:** Founded in 1997 for residents of the Highbridge section of the Bronx, New York and for residents of the Commonwealth of Virginia. This four-year scholarship will be awarded to newly-entering students who have need of tuition assistance and who maintain good academic standing.

**Gerard ’63 and Susan Caccappolo Scholarship** established in 2008 to provide financial aid to students of Hispanic origin enrolled full-time in a baccalaureate degree program with preference given to inner city residents.
The Louis Calder Foundation Scholarship: Founded in 1993 by the Trustees of The Louis Calder Foundation to provide tuition assistance to deserving students resident in the City of New York who graduated from secondary schools located in the City of New York.

The Christian Brothers Scholarship: The Christian Brothers of Manhattan College sponsor scholarships for economically disadvantaged students for whom St. John Baptist de La Salle founded the Institute of the Brothers of the Christian Schools.

The Class of 1949 Scholarship: Founded in 1999 as a 50th Anniversary Class gift to provide tuition assistance to deserving students who otherwise might be unable to attend Manhattan College.

The DeFeo Family Scholarship: Established in 2006 by Neil and Sandy DeFeo to honor the memory of Noah DeFeo provides financial assistance based on demonstrated leadership, academic excellence and financial need.

The DiMartino Family Scholarship: Founded in 1995 by Joseph S. DiMartino ’65 to provide tuition assistance to financially disadvantaged students.

The James Fennell Scholarship: Established by his family in memory of James Fennell, class of 1905. It is a four year tuition and board scholarship intended to provide a complete educational experience to worthy students with financial need.

The Frank A. Finnerty Scholarship: Established in 1989 by the Heckscher Foundation for Children in memory of their colleague, Frank Finnerty. The income from this fund is for scholarship assistance for worthy students at Manhattan College.

The Kevin J. Frawley ‘90 Memorial Scholarship: Founded in 2004 by family and friends will be available to graduates of local Catholic high schools who commute from home to Manhattan College and have a demonstrated need for tuition assistance.

The Ambassador Charles J. Gargano Scholarship: Founded in 1996 by the friends of Ambassador Charles J. Gargano, Class of 1979, to provide tuition assistance to academically talented, financially disadvantaged students. Preferential consideration will be given to residence of Brooklyn, New York.

The Cornelius Heeney Memorial Scholarship: Founded in 1992 by the Brooklyn Benevolent Society to provide tuition assistance to an entering freshman who is a resident of Brooklyn, New York and who demonstrates financial need. Annual renewal of the scholarship is contingent upon the awardee’s maintaining good academic standing.

The Horan Family Scholarship: Founded in 1999 by Julie and John J. Horan ’40 to provide tuition and fees assistance to students in need of financial aid, with special emphasis on the children of parents who did not attend an institution of higher education.

The Edward O. Hynard Memorial Scholarship: Founded in 2000 through the bequest of Edward O. Hynard. Financial aid will be provided to deserving undergraduates who are in need of tuition assistance to complete their degree programs.

The Brother Jasper Alumni Memorial Scholarship: Founded in 1946 by the Manhattan College Alumni Society.

Michael J. and Aimee Rusinko Kakos Scholarship: Established in 2007 by Michael J. ’58 and Aimee Rusinko Kakos to provide financial aid to graduates of Cardinal Hayes H.S. who have demonstratable financial need.

The Junius Kellogg Scholarship: Established by classmates, alumni and friends, to honor Junius Kellogg, class of 1953 for his honesty and courage as a man and as an athlete. The scholarship is intended to assist capable students whose financial need goes beyond family and personal resources, and federal and state grants. Recipients must maintain a total cumulative index of 2.00 at the end of the Spring semester of each of the four years of study to retain scholarship funding.
The Jeanne-Marie LaBlanc Memorial Scholarship: Established in 1993 by Elizabeth and Robert E. LaBlanc ’56 in memory of their daughter, Jeanne-Marie, to provide tuition assistance to graduates of northern New Jersey high schools who have need of financial aid to secure their college education. Continuation of the scholarship requires that the student remain in good academic standing.


The Thomas E. McEntegart ’10 Memorial Scholarship: Founded in 2000 by Eileen F. McEntegart, Trustee Emerita, in memory of her father, to assist economically disadvantaged students achieve their baccalaureate degrees.

The Joseph and Marie McGovern Scholarship: Founded in 2004 by a bequest from the estate of Joseph McGovern to provide tuition assistance to young women with demonstrated need.

Kenneth and Helene Orce Scholarship: Founded in 2006 by Kenneth Orce ’65 to provide tuition assistance to needy students. Preference given to residents of the City of Yonkers.

The O’Rourke Family Scholarship: Founded in 1998 by John J. O’Rourke, Class of 1966, in memory of his parents, William and Catherine O’Rourke. Tuition assistance will be provided to students who are permanent residents of New York City and who have unmet tuition costs.

The Ernest E. Stempel ’38 Scholarship: Founded in 1996 by the Ernest E. Stempel Foundation to provide tuition assistance to financially disadvantaged students.

The John Vigiano, Jr. Memorial Scholarship: Established in 2002 by the Travelers Foundation. Foundation in memory of John Vigiano, Jr., FDNY, who perished in the World Trade Center disaster. Scholarships will be awarded annually to students enrolled in a full-time baccalaureate degree program who are deemed in need of tuition assistance.

Minority:

The Frederic V. Salerno Scholarship: Founded in 1995 by Frederic V. Salerno ’65 for minority students who are residents of New York City and are in need of financial aid.

The William Randolph Hearst Scholarship: Founded in 1996 by William Randolph Hearst Foundation to provide tuition assistance to academically talented, financially disadvantaged minority students who intend to reside in the United States of America upon completion of their degree program.

N.S.S.F.N.S.: Manhattan College in cooperation with the National Scholarship Service and the Fund for Negro Students will offer several scholarships to students whose application comes through N.S.S.F.N.S. to stimulate the attendance of Black youth at the college. Value: Total value of all scholarships not to exceed $3000 per year.

R.O.T.C., Veterans and Children of Past/Present Servicemen:

Air Force R.O.T.C. College Scholarship Program: Scholarships are available to qualified undergraduate students. Four, three, and two year scholarships are available on a competitive basis. Applications for four-year scholarships are due by December of the senior year in high school. Applicants are selected on the basis of SAT scores, quality of academic work, and the results of a personal interview.

Current college students may also apply for three, two, or one year scholarships, depending on their major. College applicants are selected on the basis of cumulative GPA, physical fitness tests, and the Air Force Officer Qualification Test. All of these scholarships pay from $9,000
per year to full tuition, books, and fees. In addition, students enrolled in ROTC receive a subsistence allowance of $150 per month in their final two academic years and can be eligible for a $2,000 per year POC incentive scholarship if they do not qualify for other AFROTC scholarships. For further information, contact the ROTC admissions officer at (718) 862-7902.

American Legion, Riverdale Memorial Post 1525 Scholarship: Established in 1986 by the American Legion Riverdale Memorial Post. The income from this scholarship fund will provide financial assistance, preferably to an individual who is serving or has served in the U.S. Armed Forces or for his/her dependent.

The Lieutenant Anthony John Turtora Memorial Scholarship: Established in memory of Lieutenant Anthony John Turtora, USMC, D.F.C., class of 1940, lightweight varsity crew stroke, by the Albert M. and Lyda M. Green Foundation and his classmates to honor his patriotism, loyalty and self-sacrifice. The scholarship is intended for students who demonstrate qualities of patriotism, leadership and academic ability. Preference will be given to students who have had past, or have present, honorable service with the U.S. military, including participation in an R.O.T.C. program. Past or present membership on the crew team is a preferential, but not a mandatory criterion. Lieutenant Turtora was killed in action in the Guadalcanal area on October 15, 1942 and was awarded posthumously the Distinguished Flying Cross for heroism and extraordinary achievement.

The Charles J. Wanzel III, USAF Scholarship: Established in 1992 by Charles J. Wanzel, Class of 1934, and Julia K. Wanzel in memory of their son, Captain Charles J. Wanzel III, USAF. Awarded to an entering freshman who is a U.S. citizen and the child of a member of the U.S. Armed Forces who was killed in action during military conflict or in the line of duty. This four-year scholarship is available to students majoring in engineering, the physical sciences or mathematics.

Special Awards:

The Brother Albert Paul Gladhill Scholarship: Founded by Roger J. Goebel of the class of 1957 in memory of Brother Albert Paul Gladhill. Awarded to a graduate of De La Salle Collegiate, Detroit, Michigan.

The Brother Gregory Hunt Memorial Scholarship: Founded in 1998 by the friends and former students of Brother Gregory, a member of the Manhattan College Athletic Hall of Fame, to provide tuition assistance to exceptional student-athletes. Preferential consideration will be given to members of the men and women’s track teams.

The Anthony Barbieri Scholarship: Donated by Mr. Anthony G. Barbieri, class of 1938, in memory of his mother and father, Frank and Lucia Barbieri. The scholarship will be awarded annually to provide scholarship support to a male and/or female student athlete at the discretion of the Director of Athletics upon the recommendation of the coach. Its purpose is to aid athletes in part where there are no scholarships offered.

The Donald R. Broderick Memorial Scholarship: Established in memory of Donald R. Broderick, class of 1986 by his family and friends. The recipient will be a person of high ethical and moral standards who manifests superior effort in college preparatory studies and is in the top half of their high school class. In the event there is more than one highly-qualified candidate preference may be given to a student from Archbishop Stepinac High School or from the Metropolitan Catholic High School League who has participated in high school athletics.

The Mary and Patrick Courtney Memorial Scholarship: Established in honor of Mary and Patrick Courtney by the estate of Nicholas P. Courtney by his wife Freda M. Courtney. The scholarship is awarded to a Manhattan College student whose mother is a widow.

The Charles P. Covino ‘51 Scholarship: Founded in 1998 by Dr. Charles P. Covino ‘51 to provide tuition assistance to members of the men’s and women’s track and field team who compete in field events.
The Stephani Kopalik-Diaferia Scholarship: This scholarship will be awarded to a Mt. St. Ursula graduate entering college as a freshman. The student must have letters of recommendation from two teachers and a guidance counselor. Financial need may be considered but is not a requirement.

The James and Mary Houlihan Scholarship: Established in 2003 by their children to honor their parents and members of the Houlihan Family who were student athletes. Tuition assistance will be provided to deserving student-athletes upon recommendation of the Director of Athletics.

The Carl H. Johnson III Memorial Scholarship: Founded in 1987 in memory of Carl H. Johnson III, the 1986 President of the Manhattan College Sophomore Class, by his fellow students, friends, associates and family. This fund provides a partial scholarship award to a graduate of Christian Brothers Academy, Lincroft, New Jersey entering as a freshman who best exemplified the scholarship, talents and spirit of Carl H. Johnson III, with preference given to a student entering Business.

The Michael ’58 and Aimee Kakos Scholarship: Founded in 2002 by Michael and Aimee Kakos to encourage young Americans to understand and appreciate other cultures and peoples. Tuition assistance will be provided to deserving undergraduates who have been approved for a foreign study program.

The Bob Otten ’55 Basketball Scholarship: Established in 2007 to provide tuition assistance to members of the men’s basketball team who are in need of financial aid.

The Pascal Family Scholarship: Founded in 1994 by John H. Pascal ’54 in memory of the deceased members of the Pascal Family. Tuition assistance will be awarded annually to a member of the men’s basketball team upon recommendation of the Director of Athletics.

The Robert P. Ronan Memorial Scholarship: Founded by devoted friends of Robert P. (“Red”) Ronan of the class of 1957 whose generous nature, gracious spirit and unending vitality can continue to be embodied by this memorial tribute. Awarded annually to a member of the baseball team on the basis of academic achievement and need for tuition assistance, with preference given to a student graduating from Good Shepherd School, Inwood, or a Christian Brothers’ school.

The Ellen A. Rooney Scholarship: Founded in 1954 by Edward S. Rooney of the class of 1926 in memory of his mother. Open only to graduates of high schools in the County of Albany, New York. Financial need rather than scholastic ability will determine the recipient. This scholarship provides funds to be used only for tuition. The student will be guaranteed a job on campus.

The Michael G. Rooney Scholarship: Founded in 1954 by Edward S. Rooney of the class of 1926 in memory of his father. Open only to graduates of high schools in the County of Albany, New York. Financial need rather than scholastic ability will determine the recipient. This scholarship provides funds to be used only for tuition. The student will be guaranteed a job on campus.

The Frederic V. Salerno Inner City Scholarship: Founded in 1999 by Frederic V. Salerno ’65 to provide tuition assistance to graduates of the Inner City Scholarship Program.

The Father Erwin H. Schweigardt ’61 Scholarship: Founded in 1998 by Neva Mahoney. Tuition assistance will be provided to students who are permanent residents of the Capital District of New York State and who have unmet tuition costs.

The John J. and Anna C. Witmer Memorial Scholarship: Established by John J. Witmer, Jr., Class of 1942 in memory of his parents. The award of a four-year scholarship will be open to a student from a Catholic high school in northern New Jersey. Continuation of the scholarship to the following year is contingent on the successful completion of all courses in the freshman year.
Scholarships for Continuing Students

Business:

The Brother Raphael Cecchini Scholarship: Founded in 2007 by Rober M. Fink ’57 to gratefully acknowledge his former teacher. Available to full-time students enrolled in the School of Business who are in need of financial aid. To qualify for this award the student must hold a part-time job during the academic year.

The Joseph E. Hanlon ’58 Scholarship: Founded in 2000 by Joseph E. Hanlon, Class of 1958, in memory of his parents Joseph Hanlon and Anne J. La Cour. Financial aid will be provided to deserving undergraduates enrolled in the School of Business who are in need of tuition assistance to complete their degree programs and whose parents are not college graduates.

The Robert Charles McGrail Scholarship: Established in memory of Robert Charles McGrail by his family and friends. Open to a Business junior or senior commuter who demonstrates academic achievement and manifests potential for leadership.

The Richard J. Mahoney ’50 Scholarship: in Memory of Dennis R. Mahoney '73. Established by Richard J. Mahoney, Class of 1950, in memory of his son, Dennis, Class of 1973. The scholarship will be awarded annually to a student enrolled in the School of Business who is entering senior year. The student must have financial need and a demonstrated commitment to academic excellence.

The Linda M. and Peter M. Musumeci, Jr. Foundation Inc. Scholarship: Established in 2004 to provide tuition assistance to students with demonstrated financial need, and who are upper-level students enrolled in the business degree program.

The Peter M. Musumeci, Jr and Linda M. Musumeci Scholarship: A full-tuition scholarship founded in 2007 by Peter M. Musumeci, Jr ’72 and Linda Musumeci to assist needy students enrolled in the School of Business during his/her junior and senior year.

Education:

The William J. Byron Memorial Scholarship: Established in memory of William J. Byron, class of 1974 by his family and friends to honor his achievements as an educator and athlete. The scholarship is intended to assist a deserving student majoring in physical education with emphasis on work with handicapped children or special education children. The scholarship may be used by a handicapped student with promise of academic achievement.

Engineering:

The John V. Avella ’64 Memorial Scholarship: Founded in 1996 by Mary Ann Avella in loving memory of her brother, John V. Avella, Class of 1964. Tuition assistance will be provided to deserving students who are enrolled in the chemical engineering degree program, who have unmet financial need and who are citizens of the United States of America. Nomination by the chair and faculty of the Department of Chemical Engineering.

The Francis R. Burde ‘49 Scholarship: Founded in 2004 by a bequest from the estate of Francis R. Burde to provide tuition assistance to deserving students enrolled in the environmental engineering program.

The Brother C. Timothy Burriss Scholarship: Founded in 2002 by alumni of the chemical engineering program in honor of the former department chairperson and dean of the School of Engineering. Financial aid will be provided to deserving undergraduates majoring in chemical engineering who are in need of tuition assistance and who have demonstrated outstanding academic achievement.

The Brother Amandus Leo Call Scholarship: Established in honor of Brother Amandus Leo Call, Dean of the School of Engineering from 1930 to 1961, from funds provided by the foundation established by James J. Wilson of the Class of 1955 and Robert T. Wilson of the Class of 1958 and supported by Edward J. McManus of the class of 1935. This scholarship provides financial aid to two students entering the junior class in Engineering. The awards are made to students having manifest potential as engineers,
provided they have achieved a creditable academic record and have financial need. Available for junior and senior years.

The Ciba Specialty Chemicals Education Foundation Scholarship: in Environmental Engineering: (formerly the Ciba Scholarship in Undergraduate Environmental Engineering): Originally established in 1993 by the Ciba Geigy Corporation, the scholarship provides financial aid to undergraduates who intend to pursue careers in environmental engineering. Awards are made to juniors and seniors who are U.S. citizens and maintain a GPA of 3.2 or better.

The Corr-Schmidt Scholarship for Engineering: Founded in 2007 by Mary Corr in memory of her husband, Dr. Francis Corr B.E. ’54 and her father, John Schmidt B.E. ’29. Provides tuition assistance to upper-level engineering students who are First Generation College Students in need of financial aid.

The Tamara Branzo Dinh ’82 Memorial Scholarship: Endowed in 2007 by family and friends is available to needy women enrolled in the Civil Engineering program.

The Edmund P. Hennelly Scholarship: Donated by Edmund P. Hennelly, Class of 1944. The scholarship will be awarded annually to a senior majoring in civil engineering who has maintained an above average academic record, who demonstrates promise of maintaining a high standard of professional ethics, and who has need of tuition assistance.


Charles J. Mauro Scholarship for Engineering: Founded in 2008 to provide tuition assistance to financially needy students enrolled in the civil engineering program.

The Robert G. McGrath ’52 Scholarship for Engineering: Founded in 2008 to provide tuition assistance to financially needy engineering students, with preference given to those who participate in community-service activities.

The Charles J. Moore, Jr. Memorial Scholarship: Established in memory of Charles J. Moore, Jr., class of 1970 Engineering, by his family and friends. Open to a junior or senior in Engineering who intends to pursue a career in electrical or mechanical engineering.

The James P. Moriarty ’54 Scholarship for Civil Engineering: Founded in 2006 by family and friends to provide tuition assistance to needy students enrolled in the Civil Engineering Program, with preference given to those whose parent works in the construction industry.

The Charles D. Morrissey Memorial Scholarship: Established in memory of Charles D. Morrissey, Class of 1949 Engineering, by his family and friends. Open to a junior in Civil Engineering for two years if student remains in good academic standing.

The James K. O’Neill ’90 Memorial Scholarship: Founded in 2000 by the family and friends of James Keating O’Neill ’90. Tuition assistance will be provided to deserving undergraduates majoring in civil engineering who are in need of tuition assistance and who have demonstrated academic achievement worthy of recognition.

The Jerry Podell Scholarship for Excellence in Mechanical Engineering: Founded by Evelyn, Andrew (class of 1975) and Jay Podell, wife and sons of Jerry Podell. Awarded each year to a senior with the highest index who has provided service to the school, shows interest in graduate study and has indicated an interest in the field of mechanical engineering.

The Professor Joseph P. Reynolds Scholarship for Chemical Engineering: Established by Dr. Reynolds, faculty member in 2007 available to needy students enrolled in Chemical Engineering.

The Clarence J. Velz Scholarship in Environmental Engineering: Donated by Patricia O’Brien Velz in memory of her husband, the founder of the environmental engineering program at Manhattan College. The scholarship will be awarded annually to a student majoring in environmental engineering who has maintained good academic standing,
who demonstrates promise of a high standard of professional ethics, and who has need of tuition assistance.

**The Michael A. Vivirito ’48 Memorial Scholarship:** Donated by Anna and Fanny Vivirito in memory of their brother. The scholarship will be awarded annually to a junior majoring in engineering who is a graduate of a Catholic high school and has need of tuition assistance. The award will be renewed in senior year provided the student has maintained good academic standing and has need of tuition assistance.

**The James J. Wilson Family Scholarship:** Open to students in Engineering who have completed two years of study, maintained good academic standing and are actively making a contribution to the life of the college through participation in athletics, student activities or co-curricular activities.

**The Owen O’Rorke, Julette O’Rorke and Anthony Albanese Memorial Scholarship:** Donated by Eugene W. O’Rorke, Class of 1941. This scholarship will be awarded annually to a junior, senior or graduate student enrolled in a full-time engineering, science or education degree program who has maintained an above average academic record, who demonstrates interest in a career in his/her field of study, and who has need of tuition assistance. Residents of the Town of Harrison, New York will be given preferential consideration.

**Science:**

**The Elinor A. Christopher Memorial Science Scholarship:** Founded in 2004 to provide tuition assistance to young women who demonstrate financial need, and who are upper-level students enrolled in a science degree program or the Radiological and Health Sciences Program for study in preparation for a career in health care.

**The Colette Dans Memorial Scholarship:** Founded in 2004 by Peter Dans ’57 to provide tuition assistance to upper-level women pursuing a career in science or science education.

**The Joseph Dottino MD ’47 Scholarship:** Founded in 2006 by Joseph Dottino MD ’47 to provide tuition assistance to needy students enrolled full-time in a science degree program in preparation for acceptance in medical school.

**The M. Martin and Alma Regina Maglio Scholarship:** Founded in 1992 by M. Martin Maglio ’37 and Alma R. Maglio for tuition assistance to junior or senior chemistry majors.

**The Magovern Family Scholarship:** Founded in 2005 by members of the Magovern family to provide tuition assistance to upper-level students enrolled full-time in the school of science as preparation for a career in medicine.

**The Madelyn and Frank Medici Pre-Med Scholarship:** Founded in 2006 by Dr. and Mrs. Frank Medici to provide tuition assistance to needy students enrolled full-time in a pre-professional program in preparation for acceptance in medical school.

**Evelyn and Jim O’Rourke Scholarship:** Founded in 2005 by Dr. O’Rourke ’39 to provide tuition assistance to needy students enrolled full-time in a science degree program in preparation for acceptance in medical school.

**Academic Achievement:**

**The Brother Berard O’Leary Scholarship:** Established by Dr. and Mrs. Carl E. Miller only for ending sophomores who have made the greatest academic progress over their freshman year.

**The ’41 Jaspers Scholarship:** Founded by members of the Class of 1941, this scholarship will be awarded annually to a senior who has maintained an above average academic record, who has demonstrated loyalty to the College through extra-curricular activities and community service, and who has need of tuition assistance.
Tuition assistance awards are provided annually to students with financial need in memory of the following alumni and friends:

Brother Aubert
Robert P. and Elise S. Barry
Jonathan Bednarek
Brother Phillip Beirne
Colonel George J. Beyer, Jr.
Joseph A. Boehmer
John F. Brennan
Charles A. Buckley
John Byrne
Dante Thomas Carota
Domenick Joseph Carota, MD
Brother Honeste Celestine
John and Mary Charters
John P. Chemidlin
Robert and Ramon DeCastro
George, Catherine and Thomas F. De Naouley
Most Rev. Joseph P. Donahue
Warren and Edna Dornhoeffer
Catherine Murray Doyle and Sisters
John J. Duffy
William J. Dwyer
John K. Edgley
William and Henry Eipel
Catherine and George Favareau
John O'Donnell Feeks
Brother Defendant Felix
Mary T. Finn
Howard and Maxine Floan
John Fuller Gordon
Daniel F. Gordon, Jr.
George and Helen Hochschwender
Edward Holub
Sarah A. Hundemann
Br. Adrian Lewis
Ambrose '34 and Margaret Lorne
Joseph A. Mahoney
Elizabeth Broch Milone
William J. Moffett
William F. Morris
Edward J. Moylan
Brother Adelphus Patrick
Arthur V. Sheridan
Charles D. Vanier
McGloine-Weidl
Brother Bernard Alfred Welch
Catherine Wren
Anthony N. Zock '36
James L. Zock '38

Research:

The Louis F. Capalbo Business Research Fund: Established by Louis F. Capalbo of the class of 1941 to promote research by faculty and students in Business. The income from this endowment will provide support for faculty research projects which include students as research fellows as a complement to ongoing academic activity. Faculty will apply for support on a competitive basis, with judgment made by the Dean of Business in concert with a review committee.

The Edward V. Branigan Research Endowment: Established by Edward V. Branigan of the class of 1940 to promote student creativity and scholarship in Arts and Sciences. Enrolled students or students and faculty will apply for support for specific annual competitions. Judgment is made by the Dean of Arts and the Dean of Science in concert with a review committee.

State Aid:

Many states sponsor loan and grant programs for eligible students. Contact your guidance counselor or your state office of higher education assistance for information about funds available from your home state and the availability of these funds for out-of-state study.

New York State:

Tuition Assistance Program: New York State residents attending colleges in New York State are eligible for Tuition Assistance Program (TAP) Awards. The purpose of the Tuition Assistance Program is to give access and choice to all New York State residents according to educational interests and needs of the student. The awards may be received for a maximum of eight semesters.

Annual application for TAP is required. TAP application may be completed by filing the Free Application for Federal Aid (FAFSA), which is available after January 1 of the academic year.

Child of Veteran Award: These awards are available to children of veterans who are deceased, disabled or missing in action as a result
of service during World War I, World War II, Korean Conflict or Vietnam. The amount of the award is $450 per year for four years. In addition to applying for TAP the student must complete a separate Child of Veteran Award Supplement available from HESC.

**Paul Douglas Teacher Scholarship:** Available to New York State residents in the top 10% of the high school graduating class registered in a program leading to certification in a teacher shortage field. Up to $5000 for up to four years of full-time study. A student must teach two years for each annual payment received. Students apply by completing the Tap Application and the Paul Douglas Teacher Scholarship Application available from HESC.

**Higher Education Opportunity Program:** Under New York’s Higher Education Opportunity Program (HEOP) academically and financially disadvantaged students may receive academic support and financial aid grants from both the college and the State to insure college success. Contact the HEOP Office at the college for more details.

**Academic Progress and Program Pursuit for New York State Programs:**

**Full-time TAP Recipients:**

It is most important for all undergraduate full-time and part-time aid recipients to realize that a complete withdrawal from all classes during a particular semester will place the student’s financial aid in suspension. The student will automatically become ineligible for financial aid for the following semester. If a student is considering withdrawing from all courses, please visit the Student Financial Services Office before you do so.

If you are a full-time undergraduate student receiving TAP or any other New York State grant or scholarship you must meet the State Education Department’s requirements for both satisfactory academic progress and program pursuit.

**Program Pursuit:** means making a passing or failing grade in the following percentages of a full-time program (which is a minimum of 12 credits per semester).

<table>
<thead>
<tr>
<th>Semester</th>
<th>Minimum Credits Accrued</th>
<th>Minimum GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2nd</td>
<td>6</td>
<td>1.0</td>
</tr>
<tr>
<td>3rd</td>
<td>15</td>
<td>1.2</td>
</tr>
<tr>
<td>4th</td>
<td>27</td>
<td>1.3</td>
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<tr>
<td>5th</td>
<td>39</td>
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</tr>
<tr>
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<tr>
<td>7th</td>
<td>69</td>
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</tr>
<tr>
<td>8th</td>
<td>84</td>
<td>2.0</td>
</tr>
<tr>
<td>9th*</td>
<td>99</td>
<td>2.0</td>
</tr>
<tr>
<td>10th*</td>
<td>114</td>
<td>2.0</td>
</tr>
</tbody>
</table>

*Note: Only students in five year programs, approved pursuant to section 145-2.7 of the Regulations, are eligible for more than eight semesters of undergraduate awards.

A recipient of New York State aid who fails to meet the program pursuit or satisfactory aca-
Aid for Part-Time Study Recipients:

Undergraduate students receiving New York State Aid for Part-Time Study (APTS) must also meet BOTH satisfactory academic progress and program pursuit requirements.

Program Pursuit: means making a passing or failing grade in the following percentages of a part-time program (which is a minimum of 6 credits per semester).

1st Year or APTS Payment- 50% of a part-time program must be completed each semester (3 credits per semester)

2nd Year of APTS Payment- 75% of a part-time program must be completed each semester (4 credits per semester)

3rd and all subsequent Years of APTS Payment- 100% of a part-time program must be completed each semester (6 credits per semester)

In order to be eligible for State aid the following semester you must meet the program pursuit every semester.

Satisfactory Academic Progress: The student must successfully complete a minimum number of semester hours of credit with a minimum grade point index according to the same satisfactory progress chart that is printed in the previous section for full-time undergraduate TAP recipients. The difference is that part-time APTS recipients are not reviewed every semester for satisfactory academic progress; rather their academic progress is reviewed in 12 credit increments. Each accumulation of 12 credits attempted counts for one semester on the full-time chart; an APTS recipient must meet the academic progress requirements.

Waivers for Exceptional Circumstances: A recipient of New York State aid who has a very good reason for lack of academic progress in a particular semester and can provide documentation of such unusual circumstances, may request a one-time waiver of the New York State satisfactory academic progress requirements from the Office of Student Financial Services. This waiver may be used only once as an undergraduate. If you think you have the grounds for a one-semester waiver, visit the Student Financial Services Office. The waiver will permit you one semester of receipt of your New York State Aid after you have lost your eligibility. During the waiver semester, you must make up your academic progress deficiency so that you will be eligible to receive and for the next term.

Transfer Students: Transfer students and students re-admitted after an absence of at least one year from college are reviewed for satisfactory academic progress for New York State assistance on a somewhat different basis. While you must meet the program pursuit requirements based on the number of New York State award payments you have received, the satisfactory academic progress requirements you must meet will be based on either the number of state aid payments you have received or the number of transfer credits awarded to you upon your admission to the College. Placement on the chart of academic progress will be made based on whichever placement benefits the student the most.
Federal Financial Aid Programs:

Federal Pell Grant: This program provides direct grants from the federal government to the undergraduate student for educational expenses. Grants may range in size up to $4,731 per year. To be eligible, a student must complete the Free Application for Federal Student Aid (FAFSA) and comply with all verification requests if selected.

Federal Academic Competitiveness Grant (ACG): This program provides up to $750 for the first year of undergraduate study and up to $1,300 for the second year of undergraduate study to full-time students who are U.S. citizens, eligible for the Federal Pell Grant, and who have successfully completed a rigorous high school program of study as determined by the Secretary of Education. Second year students must also have maintained a cumulative grade point average (GPA) of at least 3.0. To be eligible, a student must complete the Free Application for Federal Student Aid (FAFSA) and comply with all verification requests if selected.

National Science and Mathematics Access to Retain Talent Grant (SMART): This program provides up to $4,000 for each of the third and fourth years of undergraduate study to full-time students who are U.S. citizens, eligible for a Federal Pell Grant, and majoring in physical, life, or computer sciences, mathematics, technology, or engineering or in a foreign language determined critical to national security. Eligible majors are designated by the U.S. Department of Education. Students must also have maintained a cumulative grade point average (GPA) of at least 3.0 and be enrolled in major required courses for each term of the award. To be eligible, a student must complete the Free Application for Federal Student Aid (FAFSA) and comply with all verification requests if selected.

Federal Work Study Program: A student who has remaining financial need after all grants are considered may be offered the College Work Study Program. A student may work 10 to 15 hours a week on campus and receive a paycheck to help defray living costs. During vacation periods it is possible to work full-time.

Federal Perkins Loan Program: Perkins loans at Manhattan College range from $500 to $3,000 per year. Funds in this program are extremely limited and awarded to students after careful review of their need and eligibility, major and future career plans, academic grade point average, and a counselor’s discretion of the student’s future ability to pay. Students awarded the Perkins Loan must personally meet with the SFS Office to complete an entrance interview and the master promissory note.

Federal Subsidized and Unsubsidized Stafford Loans: Loans are made by participating lenders to students for college costs and allowed expenses. Students may borrow $3500 freshman year, $4500 sophomore year and $5500 for junior and senior years. Although the loan may be repaid interest free in advance, repayment begins six months after graduation or termination as half-time student. Up to ten years may be allowed for repayment. Students cannot borrow more than the cost of attendance less the combination of other financial aid and family contribution as computed as a result of the FAFSA application.

Loan borrowers are reminded that they have a responsibility to future college students to repay those loans. Failure to repay cannot only damage one’s credit rating and lead to legal action, it can also affect the ability of future students to borrow money.

Loan proceeds are forwarded electronically by the banks to the Bursar’s Office. The student will receive lender notification when the loan proceeds are disbursed. Disbursements for an academic period are generally split into half of the amount for the Fall and the other half in the Spring. All borrowers must comply with mandatory entrance counseling.
Federal Parent Loans (PLUS): Parents of dependent undergraduate and graduate students and independent students may borrow the cost of education minus financial aid. The amount borrowed under these programs may not exceed the cost of attendance minus other financial aid, including Stafford Loans. The interest is a variable rate set annually and fixed at a level equal to the rate on the 90 day T-Bills plus 3.1%, not to exceed 9.0%. Repayment of parent loans begin 60 days after the second disbursement. Some deferred payment options may be available. Contact your lender for details. Interest may be capitalized accordingly, per lenders guidelines.

Academic progress and program pursuit for federal and Manhattan College grants, loans and work study programs
As an undergraduate student you must meet the following satisfactory progress requirements if you are the recipient of any of these federal or institutional aid programs:

Federal Pell Grant (PELL)
Federal Academic Competitiveness Grant (ACG)
Federal SMART Grant
Federal Supplemental Educational Opportunity Grant (SEOG)
College Work Study
Federal Perkins Loan
Federal Stafford Loan
PLUS Parent Loan for Undergraduate Students

DEGREE AND AID TIME LIMITS
There is a maximum length of time set for completion of a degree program with the benefit of receipt of federal (excluding Pell grants) and/or Manhattan College financial assistance. The standards below provide the basis for academic progress for federal and Manhattan College aid recipients.

Full-time student Part-time students
6 years 12 years

Students who first received a Federal Pell grant beginning with the Fall 1987 semester, please be advised that the maximum length of time set for you to receive a Pell grant is:

Full-time students Part-time students
6 years 10 years
SATISFACTORY ACADEMIC PROGRESS

All students at Manhattan College are expected to make positive academic progress toward a degree. Students are said to be making satisfactory academic progress when they meet both the quantitative and qualitative criteria established by federal regulations.

Standards of Satisfactory Academic Progress involve both qualitative (cumulative grade point average) and quantitative (hours earned compared to hours attempted and a maximum time limit) elements. This requirement applies to all applicants for any type of federal assistance. To be eligible for financial aid at Manhattan College students must be in compliance with all three of the following areas: cumulative GPA, hours earned, maximum time limit.

I. Cumulative Grade Point Average (GPA):

Students must maintain the required cumulative grade point average established by Manhattan College to continue enrollment and to be eligible for financial aid. Satisfactory progress will be measured for all coursework attempted and/or completed toward the student’s degree.

<table>
<thead>
<tr>
<th>Attempted Credits + Transfer Credits</th>
<th>Cumulative GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-26</td>
<td>1.8</td>
</tr>
<tr>
<td>27-59</td>
<td>1.9</td>
</tr>
<tr>
<td>60 and above</td>
<td>2.0</td>
</tr>
</tbody>
</table>

II. Earned Hours (Compared to Attempted Hours):

It is recommended that students attempt to earn at least two-thirds of the credits required per academic year in order to complete graduation requirements in four years. To remain eligible for financial aid, students must earn at least 67% of total cumulative hours attempted.

For financial aid purposes, the following definitions and conditions apply:

- To earn hours at Manhattan College, one must receive a grade of A, B, C, or D* (including “+” and “-”). All other grades, including F, I or W do not earn hours.
  *Certain grades will not fulfill academic requirements of a student’s major/degree. Refer to the catalog section on grading policies.

- Classes from which a student withdraws after the drop/add period count as attempted but not earned hours. Therefore, withdrawing from classes after the drop/add period negatively affects students’ ability to satisfy the hours earned standard.

- When a student repeats a course, the total attempted hours will increase with each repeat, but the student may only earn hours for a successfully completed course once. Therefore, repeating courses may negatively affect student’s ability to satisfy the hours earned standard.

- Accepted transfer credit counts as both attempted and earned hours.

III. Maximum Time Limit:

To remain eligible for financial aid, undergraduate students must complete their degree requirements within 150 percent of the published length of their academic program. At Manhattan College, for example, this means that students in programs requiring 120 hours for graduation are eligible for financial aid during the first 180 attempted hours as an undergraduate. All attempted hours are counted, including transfer hours, whether or not financial aid was received, or the course work was successfully completed.

Annual SAP Reviews:

At the end of the spring semester, a year-end review is completed, and students who are out of compliance with one or more of the SAP standards will be notified by the Dean and the Office of Student Financial Services. The College’s policies on academic warning, probation and dismissal are cited under the Academic Standards and Procedures section of the catalog. Manhattan College may fund students during their probationary period.
Regaining Eligibility for Financial Aid: To regain eligibility, the student may attend summer school and/or any other terms necessary, without aid, until all deficiencies are remedied.

I. Cumulative GPAs can only be brought up by attendance at Manhattan College programs where credit is earned and grades are calculated for the grade point average.

II. Hours deficiencies may be made up by successfully completing coursework at Manhattan College or at another institution. However, if enrolling elsewhere, the student must complete the appropriate forms and have the coursework pre-approved by Manhattan College prior to enrolling in the other institution. Students must provide an academic transcript after transient study coursework has been successfully completed.

III. Maximum Time Frame: Once the Time Limit has been exceeded, aid eligibility ends, even if the student is in compliance with the other two standards. There is no regaining eligibility for aid as long as the student is an undergraduate.

Once students are in compliance with all three standards (are back in compliance with the first two standards and still in compliance with the third), they must notify the Financial Aid in writing to request a reevaluation of eligibility. This process cannot be done until all grades and hours are posted to the student’s official record. No financial aid award can be calculated until after the review process is complete.

Appeals: Federal regulations allow for certain cases in which the school may waive the standards. Appeals for the waiver may be considered if a student’s failure to comply with one or more areas of Satisfactory Academic Progress is due to mitigating circumstances. These must be appropriately documented for the specific term(s) in which the deficiency occurred. Eligibility may be regained by appeal. Contact the Director of Student Financial Services and the Dean to process a Satisfactory Academic Progress (SAP) Appeal.
STUDENT LIFE

Mission Statement
The Student Life Division serves the Lasallian Catholic educational mission of the College by promoting religiously and philosophically grounded moral virtues and values, the Catholic social justice tradition, student leadership and lifelong learning through solid social and spiritual supports; provides a caring and safe campus environment that embraces diversity; and fosters a living and learning experience that is a catalyst for individual development and community achievement. The Division supports all persons in student life leadership and staff positions to be conversant with the nature of the Catholic culture and Lasallian heritage of the College and educates students to this essential aspect of the mission.

Student Life personnel provide programs, advisement and services for the educational, financial, emotional, occupational, athletic, physical, social, cultural and religious needs located in a pluralistic community. Direction and assistance are provided through disciplined guidance, policies and procedures that engender respect both for personal dignity and the rights of others in promoting student development. The mission also includes a commitment to serve and help students develop quality, valued-based relationships with their peers and families as well as with the entire Manhattan College community.

Purpose
The College offers a comprehensive program of student personnel services designed to develop the students’ potential for self-guidance in their efforts to achieve success in life as desirable members of society.

The Office of Campus Ministry / Social Action
As a Lasallian Catholic Institution, Manhattan provides the Office of Campus Ministry and Social Action (CMSA) in order to foster the values of “Faith, Service and Community” throughout the College. CMSA provides opportunities for students and the wider campus community to develop their spirituality; to perform community service; to reflect on issues of social justice; and to put faith into action. CMSA serves members of the College community through a variety of programs, including liturgies, discussions, retreats, lectures, service trips, local community service projects, and social events.

CMSA seeks to serve students of all religious traditions. Prayer and worship opportunities are sought for all community members. There are several retreat experiences available to students each semester. Catholic Mass is available both on weekdays and on Sunday evenings. CMSA assists members of the campus community interested in becoming Catholic or receiving the sacraments.

Many students participate in local community service projects. These include Habitat for Humanity, God’s Love We Deliver, work with the elderly in nearby nursing homes, feeding the hungry in soup kitchens, tutoring children and teens, the Annual Toy Drive, three blood drives, the American Cancer Society’s Relay for Life and more. New projects are regularly developed in response to students’ interests.

CMSA sponsors domestic and international service learning trips during Intersession, Spring Break and the early summer. Jaspers have participated in service trips to Honduras, South Africa, Ecuador, Tijuana, Texas, Appalachia, and Camden, N.J.

The Campus Ministry Center, known as the Cornerstone, is located in Miguel Hall, room 209 with satellite offices of Social Action in Thomas Hall 503 and 504. Students are always welcome to drop in and enjoy the comfortable lounge, the library of current periodicals and the private offices where staff members are available for conversation, consultation and pastoral counseling.

Orientation Programs
In June, incoming first-year students are expected to participate in a two-day orientation program. The goals of this program are to provide...
an opportunity to meet with academic advisors, register for fall classes and gain insight into student life on campus. All students are expected to stay on campus overnight. Parents are invited to attend sessions planned especially for them. Additionally, during the beginning of each semester, workshops and activities are planned to help students gain valuable college and life skills.

**Faculty Advisory System.** The College administers a basic program of formal guidance designed to meet students’ needs for personalized and academic counseling from the time of admission to graduation. Greatest emphasis is placed on guidance throughout the freshman year, the period during which the student is most in need of assistance. Every first-year student is provided with a Faculty Advisor from his or her own academic School.

**Center for Career Development**

The College maintains a Center for Career Development designed to assist all students in systematically identifying, clarifying and achieving their career goals.

The Center offers individual career counseling which may be enhanced through the use of various decision-making tools such as Career Explorer. In addition to individual career counseling, group workshops are offered in the areas of career exploration, resume writing, interviewing, skills and job search techniques. A Career Development Seminar series is offered to first-year students and sophomores to help them prepare for the world of work.

A full range of placement services is provided for students seeking full-time, part-time and summer jobs, which are posted on-line for 24-hour access. For those seniors seeking full-time employment upon graduation, there is an active campus recruitment program available during the fall and spring semesters. Representatives from companies/organizations come to campus to interview students for career opportunities. A credentials file service is offered to support applications to graduate/professional schools and potential employers. The career resource library provides information on various career fields and contains annual reports and literature on many corporations and not-for-profit organizations.

To ease the transition from college to the world of work, a Cooperative Education Internship Program is available to students who have completed at least three semesters of study and who are in good academic standing. The Co-op/Internship Program gives students the opportunity for a series of meaningful off-campus work experiences related to their on-campus study and career interests. It complements and broadens one’s education through the practical application of the theoretical and technical knowledge gained in the classroom.

Manhattan co-ops/interns have had full-time and part-time placements in business, law firms, government agencies, social service organizations, museums, research laboratories, etc. Cooperative Education/Internships offers students a realistic way to explore and evaluate their interests, skills and career options while choosing to earn academic credit and an appropriate salary.

Sponsored by Career Development, The **Mentor Program** matches students with leading professionals. Meeting with mentors several times a semester, visiting the work sites, talking with other employees at the company, sitting in on a meeting, or sometimes participating in a project, offers the students opportunities to think about a chosen career field early in their college career. This program is available for first-year students and sophomore Engineering students and sophomore and junior Liberal Arts, Business, Education and Science majors.

**Counseling Center**

The Counseling Center staff provide services to students and employees. Members of the College community may avail themselves of individual counseling, which is generally of a short-term nature, or may participate in group programs offered throughout the year. Educational workshops and materials, as well as referrals to community resources are also available. Those who utilize the services of the Center present a wide variety of problems and
concerns, such as adjustment to college, resolving conflicts, improving relationships, reducing stress, coping with feelings of anxiety or depression, and concerns about alcohol or other substance abuse. In addition, Center staff provide consultation services by phone or in-office to those individuals who have questions or concerns about how to help others (e.g., friend, family member, student).

All services of the Counseling Center are confidential. Records maintained in the Counseling Center are separate from the college academic records. All staff members of the Counseling Center adhere to professional and ethical standards regarding confidentiality. The limits of confidentiality are discussed with each student at the first session.

The Counseling Center is located in Miguel Hall, Room 501. Appointments are recommended (call ext. 7394), however, walk-ins are accommodated as quickly as scheduling permits. The office is open weekdays from 9:00 a.m. to 4:30 p.m. and evenings by appointment.

Health Services

Health Services staff provide medical care for common health problems, including: acute illnesses, injuries, blood pressure checks, vision screenings, allergy injections, suture removal, nutritional counseling and a variety of other health-related services. In addition, the staff facilitates referrals to off-campus health care providers when necessary. Services are available to all registered students. Medical services provided by our nurse practitioner and physicians are at no charge. Likewise, students do not pay for any prescription medicines that we have available in stock. If a student requires outside services, such as laboratory analysis, x-rays, etc., they will be responsible for payment to that provider of services.

Health Services is located in Alumni Hall, Room 104 (next to the Fitness Center). The office is open every day at 9:00 am. The Nurse Practitioner’s hours are Monday, Wednesday, Friday 9:00 am-4:30 pm, Tuesday and Thursday 11:00 am-6:30 pm. The College Physicians’ hours are Tuesday 3:00-4:30 pm and Thursday 5:00-6:30 pm. Students are advised to call (718-862-7217) ahead of time before coming to see the doctors, although walk-ins are accepted.

Students in need of health care after Health Service hours may contact residence life staff or security for assistance. Medical care is always available at the Allen Pavilion Emergency Room (Broadway and 217th St.), which is part of the Columbia/New York Presbyterian Hospital System.

Medical Emergencies: Whenever a medical emergency arises, Campus Security (718-862-7333) should be contacted immediately. Campus Security responds to all emergency calls 24 hours a day, notifying Health Services or New York City Emergency Medical Services as appropriate. While every effort will be made to notify parents or guardians in case of serious illness or accidents requiring emergency treatment, it is understood and agreed that even without such notification those concerned give their permission and consent to the College to take such measures as may be deemed necessary.

Immunizations: New York State Law mandates that all students born after January 1, 1957 submit proof of their immunity against measles, mumps and rubella to the College as well as a completed Meningitis Response Form. Records may generally be obtained from the student’s private physician or previous educational institution. Faxied copies (to 718-862-7797) are acceptable if they are clear and legible. If a student cannot obtain his/her immunization records, s/he may arrange to have a blood test to determine immunity. A blood test can be conducted at Health Services, although the student will be responsible for the laboratory analysis fee. Free MMR immunizations are available at Health Services for those who need them. Any student who is having trouble obtaining the necessary medical records should contact the Health Services staff for assistance (718-862-7217). Immunization compliance matters can generally be resolved quickly once a student requests assistance.

Insurance and Fees. The College provides a basic Student Accident Insurance Plan for all full-time undergraduates upon registration. An additional Sickness Insurance Plan is available
on a voluntary basis. Inquiries regarding insurance should be directed to the Vice President/Chief Financial Officer and Treasurer (718-862-7356).

The Performing Arts

There are six performing arts ensembles on the campus of Manhattan College. These are: The Manhattan College Singers (chorus), The Manhattan College Players (drama), The Manhattan College Jazz Ensemble (band), The Jasper Dancers, the Manhattan College Bagpipers (Gaelic pipes and drums), the Manhattan College Pep Band and the Manhattan College Orchestra. Together, they provide an important segment of College life. Each is dedicated to pursuing the best of their art. They provide an opportunity for students to continue to develop their artistic talents and to experience the worth of artistic creation. They provide for the campus a calendar of performances that complements the academic, social and athletic offerings provided by the College for all Faculty, Staff and Students. These ensembles implement the overall mission of the College to provide a place where young people may fully develop their intellectual, social and artistic potential. For further information, contact the Coordinator of the Performing Arts at (718) 862-7254.

International Student Services

International students can obtain all necessary documents and information regarding procedures administered by Immigration and Customs Enforcement (ICE) and United States Citizenship and Immigration Services (USCIS), divisions of the U.S. Department of Homeland Security, from the International Student Advisor. Information and programming designed to aid the students’ adjustment to living and studying in New York City are provided throughout the year.

Student Activities

The College promotes a broad and varied program to enhance classroom learning. While some activities are social and just for fun, many have emphasis on student development through educational, cultural and spiritual programming. There are both extra and co-curricular clubs and organizations.

Cocurricular Organizations

The cocurricular program serves as an important supplement to the prescribed curriculum. It extends the formal classroom situation to an informal activity giving the student opportunity to satisfy individual tastes and academic curiosity.
Accounting Society
American Chemical Society
American Institute of Biological Sciences
American Institute of Chemical Engineers
American Society of Civil Engineers
American Society of Mechanical Engineers
Association for Supervision and Curriculum Development
Economic and Finance Society
Electronics Club
Engineers Without Borders
Film Society
French Club (Le Cercle Francais)
Information Technology Club
IDEA Investment Club
Institute of Electrical and Environmental Engineers
Italian Club (II Circolo Dante Alighieri)
Manhattan Magazine
Marketing Club
Mini Baja
National Society of Black Engineers
Philosophy Club
Physical Education Majors Club
Psi Lambda Psychological Association
Radiological Science Society
Society of Hispanic Professional Engineers
Society of Women Engineers
Spanish Club
Extracurricular Clubs and Organizations

Extracurricular activities provide opportunities to use special talents, socialize, serve others or pursue particular interests. To be eligible to participate, a student must be in good academic standing. A student on academic or disciplinary probation may not hold office, serve on committees, or take any active part in an organization's affairs.

Bagpipers—an opportunity to learn/play the Bagpipes & perform at numerous events.

Cheerleading Team—this co-ed spirit group motivates both fans and players at Jasper basketball games.

Christ-In-Your-Life—promotes weekly discussion of the role Christ plays in our lives especially as it relates to our role as students or faculty.

Class Representatives—this is an opportunity to represent one of the four classes; freshman, sophomore, junior, senior, at student legislature and to plan activities.

Commuter Student Association—advocates commuter issues and plans activities.

Crew Team—an opportunity to learn, practice and compete in rowing, a group building activity.

Gaelic Society—provides exposure to Irish culture.

Games Club—promotes participation in playing cards, board, and other types of games to escape from the pressures of school.

Hellenic Society—explores Greek culture through social activities on and off campus.

International Student Association—designed to acclimate international students, this group also plans culturally enriching events.

Jasper Dancers—an opportunity for students to express themselves through a variety of dance styles.

Jazzpers—provides opportunities for instrumental music expression in the campus jazz ensemble.

Karate Club—an opportunity to learn/practice personal discipline and an art of self defense.

Manhattanite—an opportunity to work on photography, writing and layout for the yearbook.

MCTV—learn how to produce, direct, and edit for the campus’ brand new television station.

Multicultural Student Union—unifies various ethnic groups and sponsors many cultural events.

New York Water Environmental Association—this group plans trips and invites speakers concerning environmental issues.

Orchestra—this new club provides a unique opportunity for students to showcase their talents.

Pen and Sword—membership is based on distinguished accomplishment in academics and activities. Each year, approximately fifteen juniors are selected to join.

Political Club—a discussion group to tackle challenging social issues and advocate for change through government systems.

Players—provides an avenue to perform and gain a working knowledge of the theatre while fostering an appreciation for drama.

Quadrangle—an opportunity to sharpen your writing and editing skills through meeting deadlines for the publishing of the student newspaper.

Relay For Life—bringing Cancer Awareness to the campus community as well as raising money for the American Cancer Society.

Resident Student Association—advocates resident issues and plans activities.

Singers—the College Choral Society is a premier performing arts ensemble which presents a regular calendar of classical, seasonal and popular concerts.

Standing Together—fosters education to all, (but not exclusively for) the college's community of gay, lesbian, bisexual and transgendered people.
**Steppers**—an opportunity to learn and perform rhythmic movement techniques.

**Student Government**—elected members of the community develop their leadership potential while representing the student body.

**Womyn’s Space**—deals with issues affecting today’s women through discussions and speakers.

**WRCM**—the campus radio station which is broadcast in the cafeterias provides an opportunity to learn how to be a deejay.

**Student Government**

By participating in Student Government, students have the opportunity to improve their leadership skills through involvement with the Executive Commit-tee, Class Officers, Legislature, Student Court and Senate; or, via involvement in extra-curricular clubs and organizations. General elections are held every Spring semester; while, the Freshman Class elections are held in the Fall.

**Social Fraternities and Sororities**

Fraternities and Sororities are a good way to build your group dynamic skills and give you the opportunity for camaraderie and networking.

**Fraternities**—Alpha Sigma Beta, Gamma Alpha Sigma.

**Sororities**—Alpha Upsilon Pi, Delta Psi Omega.

**Publications**

**Commuter Newsletter**—advises commuter students of happenings on campus.

**Vistas**—a publication of the School of Education.

**Manhattan College Engineer**—a student-edited and written journal to provide a means of gaining recognition for research and to make industry aware of Manhattan Engineers.

**Manhattan Magazine**—a publication of the School of Arts of poetry and prose.

**Manhattanite**—the Manhattan College yearbook.

**Quadrangle**—the Manhattan College student newspaper.

**Intercollegiate Club and Intramural Athletics**

Manhattan College considers intercollegiate and intramural athletics a significant part of student life and training. A Faculty Committee on Athletics supervises policies governing intercollegiate athletics. This Committee sponsors, and the Director of Athletics administers, intercollegiate teams in 19 varsity sports. The men’s varsity teams include baseball, basketball, cross country, indoor and outdoor track & field, golf, lacrosse, soccer and tennis. The women’s varsity teams include basketball, cross country, indoor and outdoor track & field, lacrosse, softball, soccer, swimming, tennis and volleyball. The institution is proud to be in compliance with Title IX providing its student body, both men and women, fair and equitable opportunities. Through periodic NCAA reviews, Manhattan College assures that the institution continues this proud tradition. College policy dictates that intramural and recreational programming be emphasized in lieu of College sponsored club sport teams. Student interest will be sought after to help in programming decisions so that interests are accommodated. The exception is that Cheerleading and Crew are sponsored club sport teams. The programs of recreation & intramurals are conducted by the Intramural Director. Intramural competition is held annually in the sports of basketball, softball, volleyball, touch football, golf, floor hockey, track, aerobics, yoga and soccer.

**Athletics Staff**

**Robert J. Byrnes**, M.B.A., Director of Athletics

**Sandra A. Taylor**, B.S., M.S., Associate Athletic Director/Senior Woman Administrator

**Katie Leighton**, B.A., M.A., Academic Advisor for Athletics
Deborah Gregory, Assistant Athletic Director/Business Manager

Lindsay Peirson, B.A., Compliance Coordinator

Kevin Leighton, B.S., Head Coach, Baseball/Athletic Coordinator

Michael Cole, B.A., Operations Manager/Assistant Coach, Baseball

Ryan Darcy, B.S., Assistant Coach, Baseball

Meaghan Asselta, B.A., Equipment Manager

Steve Dombroski, B.S., M.B.A., Director of Sports Information

Andrew Gorman, B.A., Director of Intramurals

Douglas Straley, M.S., Head Trainer

Eric Ressegger, B.S., M.Ed., Assistant Trainer

George L. Unis, M.D., Team Physician

Barry Rohrssen, B.S., Head Coach, Men’s Basketball

John Alesi, B.A., Assistant Coach, Men’s Basketball

Edgar DeLaRosa, B.S., Assistant Coach, Men’s Basketball

Ron Ganulin, B.S., Assistant Coach, Men’s Basketball

Myndi Hill, B.S., M.S., Head Coach, Women’s Basketball

Cassie Glasrud, B.A., Assistant Coach, Women’s Basketball

Sonia Burke, B.A., Assistant Coach, Women’s Basketball

Karen Force, B.S., Assistant Coach, Women’s Basketball

Dante Mecca, B.A., Head Coach, Men & Women’s Track & Field and Cross Country

Joseph Ryan, M.B.A., Assistant Coach, Men & Women’s Track & Field and Cross Country

Sara Vergote, B.S., B.Ed, M.S., Assistant Coach, Men & Women’s Track & Field and Cross Country

Walter Olsewski, M.Ed., Head Coach, Women’s Swimming/Golf

Michael Swanwick, M.S.W., Head Coach, Men’s Soccer

Lonny Unger, B.A., Assistant Coach, Men’s Soccer

Sean Driscoll, B.A., Head Coach, Women’s Soccer

Rupert de los Reyes, Associate Degree, Assistant Coach, Women’s Soccer

Scott Blumberg, B.S., M.A., P.D., Head Coach, Men’s Tennis

Scott Blumberg, B.S., M.A., P.D., Head Coach, Women’s Tennis

Meaghan Asselta, B.A., Head Coach, Women’s Softball

Tim McIntee, B.A., Head Coach, Men’s Lacrosse

Justin Arini, Assistant Coach, Men’s Lacrosse

Jim Drivas, B.S., Head Coach, Women’s Lacrosse

Jon Fullick, Assistant Coach, Women’s Lacrosse

Michael Ward, B.S., & Karla Ward, B.S., Coach, Crew Club

Susan Pape, Secretary, Athletic Department
Resident Students

Accommodations. All full-time students may apply for on-campus housing. First-year and transfer students apply through the Admissions Office. Student housing is assigned by the Office of Residence Life.

Overlook Manor is an apartment style residence hall with accommodations for four to six persons depending on the size of the apartment. Horan Hall and East Hill residences are a four-person suite arrangement with private bath. Jasper and Chrysostom Hall are traditional residence halls. Traditional halls have single sexed floors with common area bath and shower facilities. The College provides a seven-day meal plan for residents. Each student is furnished with a bed, mattress, desk, desk chair, and a closet. Residents supply their own sheets, pillowcases, blankets, bedspreads, lamps, soap, towels, and other personal items. All halls have lounges with cable television service.

Resident students are required to pay a Telecommunication fee each semester. This fee covers their on-campus phone service, cable television, and high speed internet service on the Manhattan College Jaspernet to and from their residence hall room.

Club Space—The fifth floor houses many club offices. The larger offices include: Players Theater Box, Singers, WRCM Radio Station. Student government and The Quadrangle are on the third floor. The Games Club is on the second floor.

The Murray Room—A room on the third floor which is ideal to host conferences and meetings.

Lounges—On the second floor, there is a Commuter lounge equipped with cable television where you may watch the Manhattan College Channel or other outside stations; on the third floor, there is a lounge where you may socialize between classes.

Mailboxes—With the exception of Horan Hall, residents may retrieve their mail via a Thomas Hall combination lock mailbox located on the second floor.

Phones—The building has both pay phones and a campus phone for your convenience.

Plato’s Annex, Cave & Patio—These three rooms on the second floor are used frequently for guest speakers, workshops, socials, dance parties, and barbecues. Larger events are held in Smith Auditorium.

Eureka School Store—A store located on the lower level (2nd Floor) of Thomas Hall which sells convenience items including but not limited to balloons, laundry detergent, Manhattan College paraphernalia. The proceeds from sales benefit students who participate in school-sponsored service trips.

Student Conduct

Regulations governing student conduct are contained in The Student Handbook. These regulations, formulated by joint groups of students, faculty, and administrators are intended to help maintain an atmosphere conducive to learning and to make the process of education orderly and easier for all members of the community. Each student is expected to obtain a current copy of this publication.
Drug and Alcohol Violation Disclosure

Section 444 of the General Education Provisions Act (20 U.S.C. 1232 g) is amended by adding at the end the following: (i) Drug and Alcohol Violation Disclosures.

1) In General – Nothing in this Act or the higher Education Act of 1965 shall be construed to prohibit an institution of higher education from disclosing, to a parent or legal guardian of a student, information regarding any violation of any Federal, State, or local law, of any rule or policy of the institution, governing the use or possession of alcohol or a controlled substance, regardless of whether that information is contained in the student's education records, if:

a) the student is under the age of 21; and

b) the institution determines that the student has committed a disciplinary violation with respect to such use or possession.

2) State Law Regarding Disclosure – Nothing in paragraph (1) shall be construed to supersede any provision of State law that prohibits an institution of higher education from making the disclosure described in subsection (a).

Disciplinary Hearings Committee

Disciplinary authority is vested in the Dean of Students. This authority may be exercised by referral to the College Judiciary Council, or the Judiciary Committee on Student Affairs. This Committee consists of representatives of the faculty, the President of the Student Government, the President of the Senior Class, and a student appointed by Student Government. This Committee functions to insure observance of College regulations essential to the maintenance of good order in the interest of the common good.

Any member of the College community may report in writing to the Dean of Students an alleged incident of academic dishonesty as defined in the policy on Academic Integrity. The student(s) involved then becomes subject to an investigation and possible subsequent disciplinary action. The Dean of Students Office is located in Thomas Hall 514.

Student Privacy Rights

Background Information

The primary purpose of The Family Educational Rights and Privacy Act of 1974 is to grant college students “the right to inspect and review any and all official records, files and data directly related to them,” and generally to deny access by others without written consent of the student except in limited and specified circumstances.

Definitions and Procedures

Included with the coverage of the Act is any person who is or was enrolled in Manhattan as a student (including full time and part time undergraduate and graduate students, day and evening).

In compliance with and subject to the provisions of this legislation and the College’s Statement on the Confidentiality of Student Records, the College will make available to each student the College's official records, files and data falling within the scope of the Act to each student for his or her personal review and inspection. Specifically excluded from the definition are: personal notes of teachers, supervisors and administrators which are retained in their possession and are not accessible to others except substitutes; medical and psychiatric records except that these records may be reviewed by a physician or other professional of the student’s choice; the Parent’s Confidential Statement; letters of recommendation placed in the file before January 1, 1975; and campus security records.

Students wishing to inspect and review any of their official records and material contained therein should file a request in writing with the Registrar. Forms for such requests-in-writing will be made available. All proper requests will be complied with as soon as reasonably possible, but no later than forty-five days of the date of the request.

A hearing may be requested by a student to insure that his or her records are not inaccurate, misleading, or otherwise in violation of his or her privacy or other rights, to provide an opportunity for the correction or deletion of any such inaccurate, misleading, or otherwise inappropr-
ate data contained therein or to challenge the
content thereof. An appropriate hearing proce-
dure has been established by the College and is
included in the Statement of Confidentiality of
Student Records.

The Law prohibits the release of material in a
student’s file without written consent of the
student, except to officials and teachers of the
same school, another school where the student
intends to enroll, and certain state and federal
officials.

A copy of the Law and a copy of the Statement
is available in the Office of the Registrar and the
Office of the Vice President for Student Life.

Security

The Security Department is charged with the
responsibility of enforcing all College security
regulations, and overseeing the College’s risk
management policies, including the supervi-
sion of all campus parking facilities. There are
39 full-time and 3 part-time officers who con-
duct foot and vehicle patrols of the campus
areas 24 hours a day. Being a component of the
Student Life Division, the Security
Department actively supports the stated mis-
sion of the College and accepts its responsibil-
ity to employ security measures to ensure that
our students enjoy their years at Manhattan in
safety and well being.

Current Education Law 6450 crime reporting
and statistics are as follows:

<table>
<thead>
<tr>
<th>2006 FTE - 3378</th>
<th>On Campus</th>
<th>Residence Halls</th>
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<td>.0015(5)</td>
<td>.0003(1)</td>
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<td>.0000(0)</td>
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<tr>
<td>Crime</td>
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<tr>
<td>Bodily Injury Hate Crimes</td>
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</table>
Veterans benefits information is available in the Office of the Vice President for Student Life. Each semester recipients of Veterans Administration funds are required to file an Enrollment Certification in this office, and to report promptly when adding or dropping any courses, as well as being responsible for any overpayments made by the VA.

**Crime rate is calculated by dividing the number of incidents reported by the total number of full-time equivalent (FTE) undergraduate students, graduate students and college employees. In 2004, for example, there was 1 arson reported; 1 divided by the total FTE equals a crime rate of .0003. None of the incidents listed above are hate crimes.**

*The number for offenses of drugs, liquor and weapons represent referrals. No arrests were affected.*

**Veterans Benefits**

Veterans benefits information is available in the Office of the Vice President for Student Life. Each semester recipients of Veterans Administration funds are required to file an Enrollment Certification in this office, and to report promptly when adding or dropping any courses, as well as being responsible for any overpayments made by the V.A.
COMPUTER FACILITIES

A wide variety of computing resources are available to Manhattan College students, faculty, and staff via JasperNet, the college’s campus-wide network. JasperNet deploys computing and information services to campus laboratories, classrooms, the library, and offices, as well as to student residence halls. Internet access is provided by a private Metro-Area fiber-optic network.

Fifteen microcomputer laboratories are located on the Manhattan College campus in the Research and Learning Center, DeLaSalle Hall, and Miguel Hall as well as the 24-hour library and Internet Café. These laboratories serving all Schools of the College, support approximately 450 Intel based microcomputers running under Microsoft Windows and Red Hat Linux as well as high performance CAD/CAM workstations. The library/technology center supports 40 systems in a library commons area, 30 in a 24x7 accessible lab, a 40 seat multimedia classroom and an internet cafe. Wireless 802.11a/b/g network access is available throughout campus including the library, all academic locations, and common areas.

JasperNet provides file sharing, printing services, and shared access to software applications. Network services include E-mail with Web access and laser printing in the laboratories. A wide range of software is available including math and statistical packages (Maple, MathCad, MatLab, SPSS), spreadsheets (Excel), compilers (C++, Visual C++, Visual Basic, Visual J++ , Fortran), databases (Access), word processors (MS Word), presentation graphics (PowerPoint), multimedia authoring (Adobe Creative Suite), web browsers (Mozilla Firefox, Internet Explorer) as well as department-specific applications (E.g. I-DEAS, AutoCAD FLUENT). JasperNet provides full ethernet connectivity to students in all of the College’s residence halls. Students living in these networked buildings can connect their own networkable desktop or notebook computer directly to JasperNet. General support is provided at http://helpdesk.manhattan.edu.

The College’s web server - http://www.manhattan.edu - is maintained by the Computer Center and supports thousands of web pages including online catalogs, handbooks, and policies. JasperNet also supports online admissions, registration, scheduling, grading and payment at a secure website: https:\self-service.manhattan.edu. Faculty members maintain web pages for their courses on a separate file server to facilitate the posting of online courseware. The college also supports the Blackboard Academic Suite with many courses having their own online web space including online materials, threaded discussion lists, a virtual classroom and digital drop boxes. A streaming video server for course content is also available.

Computer laboratories as well as many classrooms are equipped for digital overhead projection and many are used as hands-on classrooms. All classrooms are linked to JasperNet. Manhattan College also has servers running the Open VMS, UNIX and LINUX operating systems with compiler support for academic computing along with three Sun servers running Solaris and Oracle for administrative computing. These servers housed in the Research and Learning Center (RLC) are also linked to JasperNet.

Computer Laboratory Hours:

Research & Learning Center Lab
Monday -Friday: 8:00 a.m.-10:30 p.m.
Saturday: 10:00 a.m.-5:30 p.m.

DeLaSalle - CIS Labs
Monday -Friday: 8:00 a.m.-10:00 p.m.
(Extended Hours Provided as Required)

O’Malley Library Computing Labs
Open 24 hours, Monday–Friday and weekends: Electronic Commons Multimedia Classrooms South Reading Room
The Manhattan College Library facilities include 85,000 square feet of new and renovated space, more than 100 public computers, wired and wireless work stations, an electronic classroom, 16 group study rooms, media viewing and listening stations, an Internet Café, and a climate-controlled facility for the archives of the College and the De La Salle Christian Brothers of New York and New England.

Librarians are scheduled at the reference desk to provide information and research assistance and are also available by appointment. Librarians teach information literacy classes designed to help students articulate an information need, access and evaluate sources, use the results to create a paper or presentation, and to understand some of the legal and ethical issues involved in using information.

The library is a 24/7 facility while fall and spring classes are in session. For more information about library hours, resources, or services go to www.manhattan.edu and select Library or call (718) 862-7166.
Enrollment in other than registered or otherwise approved programs may jeopardize a student's eligibility for certain student aid awards.

The following courses of study are registered and approved by The New York State Education Department:

### ARTS

<table>
<thead>
<tr>
<th>Hegis Code</th>
<th>Major Areas of Study</th>
<th>Degrees Granted</th>
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<tbody>
<tr>
<td>0601</td>
<td>Communications</td>
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<tr>
<td>2204</td>
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<td>1001</td>
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<tr>
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<td>2210</td>
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<td>4903</td>
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<tr>
<td>1509</td>
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### BUSINESS

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<th>Degrees Granted</th>
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</thead>
<tbody>
<tr>
<td>0837</td>
<td>Allied Health</td>
<td>B.S.</td>
</tr>
<tr>
<td>0401.00</td>
<td>Biology</td>
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</tr>
<tr>
<td>0802</td>
<td>Elem Ed: General Science</td>
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<tr>
<td></td>
<td>General Studies</td>
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</tr>
<tr>
<td></td>
<td>History</td>
<td>B.A.</td>
</tr>
<tr>
<td></td>
<td>Math/Cmpt Sci</td>
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</tr>
<tr>
<td></td>
<td>Psychology</td>
<td>B.A.</td>
</tr>
<tr>
<td></td>
<td>Social Studies</td>
<td>B.A.</td>
</tr>
<tr>
<td>2208</td>
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</tr>
<tr>
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<td>Elem Ed/Government</td>
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<tr>
<td>0835</td>
<td>Physical Education</td>
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<tr>
<td>1225</td>
<td>Radiological and Health Sciences</td>
<td>B.S.</td>
</tr>
<tr>
<td>2201.01</td>
<td>Sec Ed/Social Studies</td>
<td>B.A.</td>
</tr>
<tr>
<td>0799</td>
<td>Sec Ed/Math/Cmpt Sci</td>
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</tr>
<tr>
<td>0808</td>
<td>Special Education</td>
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<td>0808</td>
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<tr>
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</tr>
<tr>
<td>1905.01</td>
<td>Teacher of Chemistry</td>
<td>*B.S.</td>
</tr>
<tr>
<td>1501.01</td>
<td>Teacher of English</td>
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</tr>
<tr>
<td>1102.01</td>
<td>Teacher of French</td>
<td>*B.A.</td>
</tr>
<tr>
<td>1105.01</td>
<td>Teacher of Spanish</td>
<td>*B.A.</td>
</tr>
<tr>
<td>1701.01</td>
<td>Teacher of Mathematics</td>
<td>*B.S.</td>
</tr>
<tr>
<td>1902.01</td>
<td>Teacher of Physics</td>
<td>*B.S.</td>
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*Certification available at Elementary or Secondary Level

### ENGINEERING

<table>
<thead>
<tr>
<th>Hegis Code</th>
<th>Major Areas of Study</th>
<th>Degrees Granted</th>
</tr>
</thead>
<tbody>
<tr>
<td>0906</td>
<td>Chemical Engineering</td>
<td>B.S.</td>
</tr>
<tr>
<td>0908</td>
<td>Civil Engineering</td>
<td>B.S.</td>
</tr>
<tr>
<td>0909</td>
<td>Computer Engineering</td>
<td>B.S.</td>
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<tr>
<td>0909</td>
<td>Electrical Engineering</td>
<td>B.S.</td>
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<tr>
<td>0922</td>
<td>Environmental Engineering</td>
<td>B.S.</td>
</tr>
<tr>
<td>0910</td>
<td>Mechanical Engineering</td>
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</tbody>
</table>
### SCIENCE

<table>
<thead>
<tr>
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<th>Degrees Granted</th>
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</thead>
<tbody>
<tr>
<td>0414</td>
<td>Biochemistry</td>
<td>B.A.</td>
</tr>
<tr>
<td>0401</td>
<td>Biology</td>
<td>B.A.</td>
</tr>
<tr>
<td>1905</td>
<td>Chemistry</td>
<td>B.A.</td>
</tr>
<tr>
<td>0701</td>
<td>Computer Science</td>
<td>B.A.</td>
</tr>
<tr>
<td>1701</td>
<td>Mathematics</td>
<td>B.A.</td>
</tr>
<tr>
<td>1902</td>
<td>Physics</td>
<td>B.A.</td>
</tr>
<tr>
<td>0414</td>
<td>Biochemistry</td>
<td>B.S.</td>
</tr>
<tr>
<td>0401</td>
<td>Biology</td>
<td>B.S.</td>
</tr>
<tr>
<td>1905</td>
<td>Chemistry</td>
<td>B.S.</td>
</tr>
<tr>
<td>0701</td>
<td>Computer Science</td>
<td>B.S.</td>
</tr>
<tr>
<td>1701</td>
<td>Mathematics</td>
<td>B.S.</td>
</tr>
<tr>
<td>1902</td>
<td>Physics</td>
<td>B.S.</td>
</tr>
</tbody>
</table>

For pre-medical and pre-dental programs of study see pages 74, 136, and 140.
Since its founding, Manhattan College has sought to broaden the intellectual horizons of its students and to prepare them for the various professions. The School of Arts continues the College’s tradition through its core curriculum and its majors. The faculty of Arts seek to provide students with the skills of analysis and criticism that are central to an understanding of the contemporary world, to provide the informational base for that understanding, and to prepare individual men and women with the flexibility essential for effective professional development in a rapidly changing society.

The Curriculum

The faculty of Arts have adopted a program of education that will provide students with the opportunity for a life of continuing growth and development in the twenty-first century. The core of the program is entitled THE ROOTS OF LEARNING. Its development was supported by a generous grant from the National Endowment for the Humanities.

Foundation courses include composition, foreign language, science, and mathematics. Students then proceed to studies of the modern age through humanities and the social sciences. The program is structured to provide a common learning experience for all students in Arts.

The Core: The Roots of Learning

The Roots of Learning represents a commitment to an educational program that judiciously combines content and process. The program seeks to

- equip students with the intellectual skills essential to a productive professional life of learning and leadership;
- immerse students in the traditions of humanism, the sciences, and the social sciences;
- provide the global perspective essential to living and growing in our ever smaller, but increasingly complex world; and
- develop critical reasoning and analytical skills through an intensive study of fundamental texts.

School of Arts Core Curriculum Requirements

(Course descriptions begin on page 155.)

General Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>College Writing</td>
<td>3</td>
</tr>
<tr>
<td>A first-year requirement</td>
<td></td>
</tr>
<tr>
<td>Religious Studies</td>
<td>9</td>
</tr>
<tr>
<td>RELS 110, which is usually taken in the first year, a 300-level elective, and a 400-level elective</td>
<td></td>
</tr>
<tr>
<td>Modern Language</td>
<td>6</td>
</tr>
<tr>
<td>A full-year requirement</td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>Course requirement dependent upon program specifications</td>
<td></td>
</tr>
<tr>
<td>Science</td>
<td>9</td>
</tr>
<tr>
<td>Students select from SCI 230, 231, 232, 201, 202, 203, 204, 221 and BIOL 103-104. Part of the science requirement may also be satisfied by a full year of chemistry, biology, or physics.</td>
<td></td>
</tr>
</tbody>
</table>

Every student will demonstrate computer proficiency in the area of major concentration by passing a test on entrance or taking a computer course.

Core Requirements

Classical Origins of Western Culture
(LLRN 102*) 3
A first-year requirement

Global/non-western course 3

The Roots of the Social Sciences
9
Students choose three of the following:
- Economics (LLRN 120*)
- Government (LLRN 121*)
- Sociology (LLRN 122*)
- Psychology (LLRN 123*)

The Roots of Modern Age
12
History (LLRN 203*)
Literature (LLRN 204*)
Philosophy (LLRN 205*)
Fine Arts (LLRN 207* or LLRN 209*)

*LLRN courses are open only to students in the School of Arts and the School of Science.
The Major

A major is an extensive and detailed study of a particular discipline or a coherent combination of disciplines. Each student in Arts selects a major field of study. It is chosen on the basis of the individual’s interests, educational and career goals, and abilities. Double majors are possible with careful planning.

In Arts, the areas of specialization from which a student selects a major include the following fields: communication, economics, English, government, history, modern languages (French and Spanish), philosophy, psychology, religious studies and sociology.

In addition, several interdisciplinary majors are available to students in Arts. These programs are designed to enhance a student’s knowledge of a particular area of study not easily confined to a traditional academic department and to help the student develop an ability to address multiple perspectives. The interdisciplinary programs currently offered in Arts are international studies, peace studies, and urban affairs. Requirements for the major fields are listed under the department or program.

Students may not take more than 42 credits in their major without the permission of the Department Chair and the Dean. There is a residency requirement in the major for all transfer students: no more than 12 credits may transfer toward the major. Students are encouraged to develop a minor or a cluster.

Minor Fields of Study

Minors may be earned in most departments of Arts. In each department, the minimum grade requirements for the minor are the same as those for the major. A minor ordinarily consists of 15 credits. All courses used to satisfy the requirements for a minor must be taken at Manhattan College.

Students in Arts may pursue minors in other schools at Manhattan: in Accounting, Computer Information Systems, Finance, Management, and Marketing in the School of Business; a general Education minor without state certification in the School of Education; or a minor in Science or in a specific Science or in Mathematics or Computer Science. Students must earn a grade of C or better in all courses taken for the minor in these schools. Students generally take no more than fifteen credits in Business or Education.

Clusters

Students in all five schools are invited to use their electives to form a cluster of five courses from various departments that focus on a common theme. The School of Arts offers clusters in American Studies, Pan-African Studies, Latin-American and Caribbean Area Studies, Women’s Studies, Cognitive Science, Environmental Studies, and Roman Catholic Studies.

Information on the courses and on the requirements available from the Cluster Coordinators: Dr. George Kirsch (American Studies); Dr. Winsome Downie (Pan-African Studies); Dr. Rodney Rodriguez (Latin-American and Caribbean Area Studies); Dr. Ashley Cross (Woman and Gender Studies); Dr. Jay Friedenberg (Cognitive Science); Dr. Pamela Chasek (Environmental Studies); and Dr. Michele Saracino (Roman Catholic Studies).

Electives

Most programs in Arts include the opportunity for a student to select particular electives to meet individual needs. Often elective courses are selected on the basis of their relationship to the student’s major field of study; they also enable students to develop a minor field of study, to structure a second major, or to explore new areas of knowledge. Electives should not be selected without serious consideration. Students are advised to consult regularly with their advisors concerning their electives.

Students generally take no more than fifteen credits in Business, Education, Science, or Engineering. Any courses taken in these programs must be approved by the appropriate chair. Students interested in exercising any of these options must consult with the Academic Advisor in the School of Arts.

Please note: Credits earned in Aerospace Studies may not be used for any degree program in Arts except Peace Studies. Students may not take more than three credits total in health and physical education courses.
Student Course Load

Students may not take more than eighteen credits in the Fall or the Spring semester without the written approval of the Dean of Arts. Students may not take more than three credits in the January or May intersession or the summer session without the written approval of the Dean of Arts.

Bachelor of Science in General Studies

The curriculum for the degree program in General Studies is an alternative to the usual undergraduate curriculum. It features an area of concentration rather than a major, and three areas of lesser concentration. Consequently, there is less specialization, but opportunity for broader and more structured general education. Each program provides core requirements in English, fine arts, history, mathematics and science, philosophy, psychology, religious studies, and sociology as a foundation for self-enrichment, appreciation and understanding. The basic core requires forty-eight credits, including nine credits in religious studies, six of which must be electives at the 300- and 400-level.

A student is required to take one area of greater concentration (a minimum of eighteen credits beyond the core curriculum) in one of the following areas: biology, chemistry, computer science, economics, education, English, French, government, history, international studies, mathematics, peace studies, philosophy, physics, psychology, religious studies, sociology, Spanish, or urban studies. No language courses at the 100-level count in the greater concentration and no more than two 200-level courses or six credits of AP may count toward the lesser concentration. Students must achieve a grade of C or better in all courses in the greater concentration.

In addition, a student must follow three areas of lesser concentration (a minimum of twelve credits each beyond the core curriculum) in fields other than the area of greater concentration. Fields of lesser concentration may be selected from the following areas: accounting, applied science, business (general), biology, chemistry, computer science, computer information systems, economics, education, engineering, English, fine arts, French, general science, government, history, international studies, Japanese, management, marketing, mathematics, peace studies, philosophy, physics, psychology, religious studies, sociology, Spanish, or urban studies. No language courses at the 100-level count in the lesser concentration and no more than two 200-level courses or six credits of AP may count toward the lesser concentration. Students must achieve a grade of C or better in all courses in the lesser concentrations.

The balance of the program will include electives. A student’s program should not include electives that exceed twenty-four credits in the field of greater concentration or eighteen credits in the fields of lesser concentration. No more than 18 credits in any combination may be taken in courses offered by the Schools of Business, Education, or Engineering, including courses taken in a concentration. No more than 3 credits may be taken in Physical Education and/or Health Education combined. Credits earned in Aerospace Studies do not count toward graduation in this program. Students in this program must take at least 75 credits in the liberal arts and sciences.

Academic Advising

All freshmen and those sophomores who have not yet declared a major are advised by the Academic Advisor for the School of Arts. Students who have chosen their major are advised by the Chair of their department or his or her delegate. Transfer students plan their first semester with the Academic Advisor.

Study Abroad Opportunities

Arts encourages students to broaden their educational horizons by participating in foreign study programs. In order to participate in such a program a student must have a minimum cumulative index of 2.75.

Arts is affiliated with the American Institute for Foreign Study and is also associated with the Institute for European Study and its campuses world-wide. Foreign study opportunities are available in many countries.
Further information about these and a wide range of other study abroad opportunities is available through the Director for International Programs, Professor Nevart Wanger, or the Coordinator of Study Abroad, Mrs. Nancy Cave. All foreign study programs must be approved by the Office of the Dean of Arts after consultation with the Director for International Programs.

**Policy for Off-Campus Courses**

Once a student is admitted to Manhattan College, all major and minor department courses and all Core Curriculum courses must be taken at Manhattan College. Certain approved non-resident programs would be exceptions to this requirement. Under unusual circumstances, courses may be taken at another college, with the approval of the Dean, after consultation with the Chair of a student’s major department. Ordinarily, students who have achieved junior or senior status will not be permitted to take courses at two-year junior or community colleges.

**Honor Societies and Research Opportunities**

The faculty of Arts, in order to encourage and reward the development of serious scholarship among its students, have established on campus a number of national honor societies. Chief among these are Phi Beta Kappa and Sigma Xi.

Phi Beta Kappa, founded in 1776, is dedicated to the ideal of excellence in scholarship in the liberal arts and sciences and is widely regarded as a mark of the highest distinction. The Manhattan College Chapter, the Upsilon of New York, was chartered in 1971. Students elected to Phi Beta Kappa are chosen from among those students who have achieved general scholastic excellence.

Sigma Xi is a national honor society founded in 1886 that encourages original research in the pure and applied sciences. Students are elected to membership on the basis of their accomplishments in research and their enthusiasm for continued scientific investigation.

In addition, most academic departments sponsor local chapters of national honor societies in their disciplines. A list of these may be found on p. 24. The faculty are dedicated to encouraging student research efforts and are pleased to have students join them in their own research. Indeed, one of the hallmarks of Manhattan College is the frequency with which students and faculty join together in research projects.

Independent study courses are available in most departments for students seeking the opportunity to do advanced-level study with a faculty member. In addition, many departments also sponsor supervised internships and field-study opportunities through the department or through the Cooperative Education Program.

Of special note are the Branigan Scholars Grants. These grants, established in 1967 through the generous contributions of Edward Vincent Branigan ’40 with matching gifts from major corporations and support from the National Endowment for the Humanities, provide summer stipends for students pursuing research projects independent of their course work.

**Cooperative Education**

Opportunities for off-campus work experiences that carry course credit toward graduation are available to juniors and seniors in the School of Arts through the Cooperative Education Program.

**Graduate Awards and Fellowships**

Manhattan College is among a small, select group of American Colleges sending large numbers of students on to graduate schools. To continue this tradition, Arts has developed programs to assist students seeking information about graduate programs and particularly about fellowships and scholarships for graduate study. Further information is available from the Office of Post-Baccalaureate Studies, DLS 206E, and from the departmental chairs.
Prelegal Advisory Committee

Students interested in entering law school should seek guidance through the Prelegal Advisory Committee. In addition to personal interviews, the Committee conducts group meetings to advise students on specialized fields of law. The Committee also makes information available on requirements for admission to law schools, the availability of scholarships, and special opportunities in the legal profession. Further information is available from Professor Patricia Sheridan of the School of Business.

Health Professions Advisory Committee

The Health Professions Advisory Committee is a body of faculty members from several schools who give guidance to students interested in preparing for careers in medicine, dentistry and allied fields. The Committee advises students on the selection of programs of study that will furnish them with specialized pre-professional courses in the sciences and with a broad liberal education to prepare them for effective participation in the health-care community. Further information is available from the Office of the Chair of the Health Advisory Committee, Dr. Bruce Liby of the Physics Department.

Preparation for Medicine and Dentistry

Requirements are established by the Association of American Medical Colleges, the American Dental Association, and other professional associations in the health field. The pre-professional requirements in the sciences are met within the context of a broad liberal education. Pre-professional students are expected to maintain an average of at least a B in their science courses.

The minimum required courses for admission to professional schools are: Biology 111-112, 113-114, Chemistry 101-102, 319-320, 323-324, English 110, Mathematics 103-104 and Physics 101-102 or 107-108. Specific schools may require or recommend other courses.
Outline of Course Requirements Leading to a Bachelor of Arts Degree with a Major in the Humanities or the Social Sciences Excluding Psychology

<table>
<thead>
<tr>
<th>FIRST YEAR</th>
<th>Credits</th>
<th>SECOND YEAR</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LLRN 102</td>
<td>3</td>
<td>LLRN H/SS</td>
<td>9</td>
</tr>
<tr>
<td>LLRN H/SS</td>
<td>9</td>
<td>Global/non-western</td>
<td>3</td>
</tr>
<tr>
<td>SCI</td>
<td>3</td>
<td>SCI</td>
<td>6</td>
</tr>
<tr>
<td>Language</td>
<td>6</td>
<td>RELS Elective A</td>
<td>3</td>
</tr>
<tr>
<td>RELS 110</td>
<td>3</td>
<td>Major and/or Elective</td>
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</tr>
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<td>ENGL 110</td>
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<td>30</td>
<td></td>
</tr>
<tr>
<td>MATH</td>
<td>3</td>
<td>30</td>
<td></td>
</tr>
<tr>
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<td>30</td>
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<table>
<thead>
<tr>
<th>THIRD YEAR</th>
<th>Credits</th>
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<tbody>
<tr>
<td>LLRN H/SS</td>
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<tr>
<td>RELS Elective B</td>
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<td>Major and/or Elective</td>
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<table>
<thead>
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<th>FOURTH YEAR</th>
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<tbody>
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<td>Major and/or Elective</td>
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</tr>
<tr>
<td>30</td>
<td></td>
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</tbody>
</table>

Total Credits for Graduation: 120

1. Students choose three from LLRN Social Science courses: LLRN 120, 121, 122, 123. Students take the following Humanities courses: LLRN 203; 204; 205; 207 or 209.

2. The science courses SCI 201, 202, 203, 204, 221, 230, 231, 232, and BIOL 103-104. In place of the nine-credit SCI requirement, students may take a full year of one of the following: PHYS 101-102 OR 107-108, CHEM 101-102, BIOL 111-113, 112-114, OR BIOL 115-116, 117-118, along with one SCI course in a different science.

3. Placement by Modern Language Department.

4. Students generally take MATH 102, 103, or 211.

Note: Students pursuing a B.A. are required to complete at least 99 credits in the Liberal Arts and Sciences.
Outline of Course Requirements Leading to a Bachelor of Arts Degree with a Major in Psychology

**FIRST YEAR**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LLRN 123 first or second semester</td>
<td>3</td>
</tr>
<tr>
<td>LLRN 102</td>
<td>3</td>
</tr>
<tr>
<td>Language¹ both semesters</td>
<td>6</td>
</tr>
<tr>
<td>RELS 110 first or second semester</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 110 first or second semester</td>
<td>3</td>
</tr>
<tr>
<td>MATH⁴ first or second semester</td>
<td>3</td>
</tr>
<tr>
<td>LLRN H/SS² first or second semester</td>
<td>6</td>
</tr>
<tr>
<td>PSYC 209</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
</tr>
</tbody>
</table>

**SECOND YEAR**

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<th>Course</th>
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<tbody>
<tr>
<td>PSYC 205</td>
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<td>LLRN H/SS²</td>
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<tr>
<td>SCI¹</td>
<td>6</td>
</tr>
<tr>
<td>PSYC 315</td>
<td>3</td>
</tr>
<tr>
<td>PSYC Applied</td>
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</tr>
<tr>
<td>RELS Elective A</td>
<td>3</td>
</tr>
<tr>
<td>Global/non-western</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
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</table>

**THIRD YEAR**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC Social/Developmental</td>
<td>6</td>
</tr>
<tr>
<td>LLRN H/SS²</td>
<td>3</td>
</tr>
<tr>
<td>RELS Elective B</td>
<td>3</td>
</tr>
<tr>
<td>SCI¹</td>
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</tr>
<tr>
<td>Electives</td>
<td>15</td>
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<tr>
<td><strong>Total</strong></td>
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</table>

**FOURTH YEAR**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC Clinical/Cognitive/Physiological</td>
<td>9</td>
</tr>
<tr>
<td>Electives</td>
<td>21</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
</tr>
</tbody>
</table>

**Total Credits for Graduation:** 120

¹ Placement by Modern Language Department.

² Students choose two from LLRN Social Science courses: LLRN 120, 121, 122. Students take the following Humanities courses: LLRN 203; 204; 205; 207 or 209.

³ The science courses are SCI 201, 202, 203, 204, 221, 230, 231, 232, and BIOL 103-104. In place of the nine-credit SCI requirement, students may take one full year of the following: PHYS 101-102 OR 107-108, CHEM 101-102, BIOL 111-113, 112-114 OR BIOL 115-116, 117-118, along with one SCI course in a different science.

⁴ MATH 211 is highly recommended for students pursuing a degree in Psychology.

Note: Students pursuing a B.A. are required to complete at least 99 credits in the Liberal Arts and Sciences.
# Outline of Course Requirements Leading to a Bachelor of Science Degree with a Major in Psychology

<table>
<thead>
<tr>
<th>FIRST YEAR</th>
<th>Credits</th>
<th>THIRD YEAR</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LLRN 123 first semester</td>
<td>3</td>
<td>PSYCH Applied/Developmental/ Psychological/Social</td>
<td>12</td>
</tr>
<tr>
<td>LLRN 102</td>
<td>3</td>
<td>LLRN H/SS</td>
<td>12</td>
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<tr>
<td>PSYC 209 second semester</td>
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<td>RELS Elective A</td>
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<td>Language(^1) both semesters</td>
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<tr>
<td>BIOL 111-113, 112-114</td>
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<tr>
<td>ENGL 110 first or second semester</td>
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</tr>
<tr>
<td>MATH 103 or 211</td>
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<td>PSYC 205</td>
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<td>LLRN H/SS(^2)</td>
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<td>PSYC Cognitive/Clinical</td>
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<td>BIOL 207-208</td>
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<td>RELS Elective B</td>
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<td>PSYC 315</td>
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<tr>
<td>CHEM 101-102 or PHYS 107-108</td>
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<tr>
<td>Global/non-western</td>
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<td><strong>Total Credits for Graduation:</strong></td>
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</tbody>
</table>

\(^1\) Placement by Modern Language Department.

\(^2\) Students choose two from LLRN Social Science courses: LLRN 120, 121, 122. Students take the following Humanities courses: LLRN 203; 204; 205; 207 or 209.
### Summary of Course Requirements

**Bachelor of Science — General Studies**

<table>
<thead>
<tr>
<th>Core Requirements</th>
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<td>ENGL 110</td>
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<tr>
<td>ENGL Elective(^1)</td>
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<tr>
<td>ENGL 210, 211, 240, 241, 326, or 333</td>
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</tr>
<tr>
<td>HIST Elective</td>
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</tr>
<tr>
<td>GOVT Elective</td>
<td>3</td>
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<tr>
<td>SCI, MATH or CMPT</td>
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<tr>
<td>FINE ARTS Elective</td>
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<tr>
<td>RELS (110, 300-level, 400-level)</td>
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<tr>
<td>SOC Elective</td>
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<tr>
<td>PHIL Elective</td>
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<td>PSYC Elective</td>
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### Fields of Concentration

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<td>Field of Greater Concentration(^2)</td>
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<tr>
<td>Three Fields of Lesser Concentration(^3)</td>
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<tr>
<td>Free Elective(^4)</td>
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<tr>
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<td>75</td>
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</tbody>
</table>

**Total Credits for Graduation:** 120

\(^1\) *Students may not fulfill this requirement with ENGL 106, 210, 211, 240, 241, 255, 256, 326, 331, or 333.*

\(^2\) *Students will be required to complete a minimum of eighteen credits beyond the core requirements.*

\(^3\) *Students will be required to complete a minimum of twelve credits in each of three disciplines beyond the core requirements.*

\(^4\) *Students registered in General Studies are not permitted to exceed 18 credits in any combination of business, education, engineering, or applied science courses.*
BUSINESS

Historical Note

In September, 1926, a two-year program of courses in business was offered to qualified students who had completed two years in Arts and Sciences. The success of this program prompted the establishment of Business in the spring of 1927. Degrees of Bachelor of Science in Business were awarded to the first graduates of the program in June, 1928. During the next two years the program of professional subjects was again revised and extended to a four year curriculum of business and cultural courses. The first class to complete this curriculum conducted totally within Business was graduated in 1932. In 1933 the degree designation was changed to Bachelor of Business Administration. In 1970, as a result of an extensive curriculum revision which emphasizes a balance of humanities, mathematics, science, social sciences, and professional business courses, the degree was changed to the Bachelor of Science (Business Administration). At the same time, the baccalaureate degree program in the Evening Session was merged into Business.

The School of Business is accredited by AACSB International, the Association to Advance Collegiate Schools of Business, the premier accrediting agency for business programs globally.

Mission Statement

In the Lasallian tradition and consistent with the mission of Manhattan College, the mission of the School of Business is to prepare young men and women from diverse backgrounds to become effective and socially responsible business and community leaders. The School’s primary emphasis is providing superior management education to qualified students, mostly from the Northeast, who will have employment opportunities at world class organizations.

Curriculum and Programs

In order to accomplish the mission of Business, the curriculum is structured to achieve a balance of liberal arts courses, and professional business courses thus bringing together liberal education and professional business preparation. The program in liberal arts is divided among the areas of humanities, mathematics, sciences, and social sciences. The professional business program, which includes core courses required of all students and the study of a major field, offers the student a balanced approach to the two aspects of the various business disciplines—theory and application to practical problems. This practical/theoretical approach heightens the ability of the student to reason and analyze a situation in the context of a given environment thus developing in him or her a practical outlook that reflects business reality. In addition, the School provides its students with an exposure to the world of business. The societal considerations of the firm and the behavioral aspects of the managerial function are interwoven throughout the business curriculum. The focus in the professional area is on executive action in business and non-business organizations.

The program of liberal arts courses, which comprises over one-half of the total curriculum, blends humanistic knowledge with professional career preparation. The sequence of general business related courses examines the fundamentals which underlie the practice of business. The sequence includes courses in accounting and mathematics relating to the use of quantitative data in decision-making and control. Other courses in this sequence are economics, law, management, marketing and behavioral sciences. In each of these courses emphasis is placed on essential analytical tools and their use in business problems of a specific area and prepares the student to enter a career in a functional field or undertake graduate study. The major fields are accounting, computer information systems, economics, finance, management, and marketing. Global Business Studies may be taken as a second or co-major.
Major Fields

**Accounting.** The concentration in accounting centers around financial and operational communications for business and governmental units. The program prepares students for careers in public accounting, industrial or private accounting, governmental and institutional accounting, or for a general business career. Accounting education provides a sound basis for advancement to managerial positions and is a desirable background for other non-business professions, such as law.

Students who want to work at certified public accounting firms should speak to the Dean of Business about Manhattan College’s special program that allows students to earn the required 150 credits to be eligible for the New York State CPA examination in four years.

**Computer Information Systems.** This area of concentration enables a student to determine the informational needs of an organization and identify the patterns of information flow which satisfy those needs. The program includes studies in computer hardware and software, programming, computer decision systems, file and communication systems, operations analysis and simulation, management information systems, and the analysis and design of information systems. The CIS major will find excellent career opportunities in systems analysis and management information systems. By combining CIS with such functional areas as accounting, finance, marketing, or management, the CIS graduate will be able to participate more effectively in system development.

**Economics.** A concentration in business economics is designed for those students whose primary interest is oriented towards an examination of economic relationships. Students seeking a broad global economic background for government, industry, or law would benefit from this program.

**Finance.** The concentration in finance enables the student to examine the tasks and techniques of financial management within business and government units and to study the elaborate structure of financial institutions and the broad range of financial instruments which are utilized in the global economic system. The program stresses financial analysis and decision-making.

**Global Business Studies.** This program develops in the student a thorough and rigorous global perspective and understanding of the international environment and markets. Such understanding is essential for any American business person who competes domestically and in the international arena. This field is interdisciplinary in nature and includes studies in economics, finance, marketing, management and government. Students who are interested in pursuing careers in the international phase of business or government may pursue it only as a second major. Proficiency in a foreign language is strongly recommended.

**Management.** Programs which include a concentration in management foster an understanding of the role of management in today’s global organizations. The program examines various theories of management; explains the skills and activities used by management in fulfilling managerial functions; explores the possibility of instituting new techniques in management and seeks to arouse interest in management as a growing field. The major emphasis is on behavioral aspects of organizations and administrative actions, in both business and non-commercial organizations. Special attention is given to the social responsibilities of the business executive and the role of the modern corporation in society.

**Marketing.** This field of study encompasses those functions involved in determining consumer needs and wants, developing products and services, and communicating with and delivering these goods to the consumer. The program emphasizes a managerial approach; is globally oriented; and is aimed at the development of marketing managers. The curriculum stresses analysis and decision-making in the marketing process.
Double Majors

The business curriculum provides seven major fields of study from which the student can elect one or more for in-depth study. A student who opts to major in two areas of concentration should utilize the business and free electives in such a way as to satisfy the requirements for the second major which consists of fifteen credits. Liberal arts electives cannot be used to satisfy the requirements of any business major or minor.

Minor Programs. In order to provide an opportunity for the student to broaden her or his educational experiences, students in Business are able to minor in a discipline other than their major field. Through special arrangements with Arts and Sciences, a student may take a minor program consisting of approximately 15 credits in the humanities, mathematics, sciences, or social sciences. A student may take a minor in any of the major fields offered by Business. This program consists of three courses in the discipline. Details of these programs may be found under the heading “Minor Fields” in the pages to follow.

All major and minor credits must be taken at Manhattan College. A minimum grade of C is necessary to receive major or minor credit. Also all 300 and 400 level Business courses must be taken at Manhattan College.

Guidance Program

The guidance and advisory program for students in Business is conducted by an Academic Advisor in conjunction with the Department Chairs. The Academic Advisor counsels all first-year students, sophomores, and transfer students, as well as any juniors and seniors when necessary. All students select their major at the end of their sophomore year. Programs of study for first-year students, sophomores, and transfer students, as well as co-approval of athletes, are approved by the Academic Advisor. Programs of study for juniors and seniors are approved by the Department Chairs who act as advisors to the students in selecting a major. Each Department Chair is responsible for advising students majoring in her or his area. They are closely associat-
ed with professional business organizations and industrial groups carrying out related activities, thus assuring maximum service to the student in preparing to meet the requirements for the degree, for advanced professional study, and for placement.

Prelegal Advisory Committee.
Business students who plan to enter law should avail themselves of the services of this Faculty Committee, page 74.

Tutorial/Reading and Research

Under very special circumstances and with the approval of the Dean, students may register for a specific course on a tutorial basis or may submit a proposal and ask a faculty member in an appropriate department to supervise a well defined course of study that involves reading and research in a specific discipline. Topics, projects, methods of research and course requirements, e.g., term papers, quizzes, exams, etc., must be worked out with the supervising professor and approved by the department chair. Students wishing to pursue a course on a tutorial basis must register for a specific course while students pursuing reading and research must register for departmental course No. 470. No more than three credits may be completed on this basis.

Student Organizations

Organizations of special interest to the students in Business include: The Society of Accountants; American Marketing Association, Student Chapter (Marketing Club); Beta Alpha Psi, an honor organization for financial information professionals; Beta Gamma Sigma, National Honor Society in Business; Computer Information Systems (CIS) Club; Alpha Iota Delta, The National Honor Society for Computer Information Systems and Decision Sciences, Delta Chi Chapter; Economics-Finance Society; Omicron Delta Epsilon, the National Honor Society in Economics, Beta Chapter; The IDEA Investment Club; Mu Kappa Tau, the National Marketing Honor Society; and Students In Free Enterprise (SIFE).
Study Abroad

Students interested in studying abroad should discuss their interest with the Academic Advisor by the beginning of sophomore year. It is best to plan the semester of study abroad for the second semester of sophomore year or the first semester of junior year. Further information about study abroad opportunities is available through the Study Abroad Office. The School of Business also sponsors a study tour each January intersession to one European nation – either France, Italy, Spain, or England. The study is linked to a course, MKTG 414 - International Field Study, conducted each spring semester for three credits. The course can be used towards a Marketing major or as one of the student’s free or business electives.

Curriculum

I. Arts and Science Courses Credits

A. Humanities Courses
ENGL 110 College Writing 3
ENGL 211 Written Communication 3
ENGL Literature Elective 3
PHIL 201 Ethics 3
RELS 110 Nature and Experience of Religion 3
RELS 3XX The Religious Traditions 3
RELS 4XX Religion and Contemporary Thought 3
Subtotal 21

B. Social Sciences Courses
ECON 201 Principles of Macroeconomics 3
ECON 202 Principles of Microeconomics 3
ECON 305 Money and Banking 3
HIST History Elective 3
PSYC 203 General Psychology 3
SOC 201 Intro to Sociology 3
Subtotal 18

C. Mathematics and Science Courses
ECON 227 Business Statistics 3
MATH 105 Linear Mathematical Analysis 3
MATH 106 Calculus for Business Decisions 3
SCI Science Elective I 3
SCI Science Elective I 3
Subtotal 15

D. Arts and Science Electives
9

Total Arts and Science Requirements: 63

1 Science requirements: 6 credits from the following: Astronomy & Earth Science 201, 202, Science 203-204, Science 207; other science courses only with the approval of the dean and chair of the department.

2 Arts and Science courses exclusive of liberal learning (LLRN) courses.

II. Business Courses Credits

A. Business Core Program for all Students
ACCT 201 Principles of Accounting I 3
ACCT 202 Principles of Accounting II 3
CIS 210 Management Information Systems 3
FIN 301 Principles of Business Finance 3
LAW 203 Business Law 3
MKTG 201 Essentials of Marketing 3
MGMT 201 Introduction to Management 3
MGMT 307 Operations and Quality Management 3
MGMT 406 Strategic Management 3
MGMT 430 Business, Government, and Society 3
Subtotal 30

B. Business Program for Non-Accounting Majors
Major Field 15
Business Electives 6
Arts, Business, or Science Electives 6
Subtotal 27
Total Business Courses 57

C. Business Program for Accounting Majors
ACCT 301-302 Intermediate Accounting 8
LAW 304 Business Law II 3
Accounting Major Courses 16
Business Electives 3
Subtotal 30
Total Business Courses 60

Total Credits for Graduation:
Non-Accounting Majors 120
Accounting Majors 123
## Summary of Course Requirements

### FIRST YEAR

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<td>ENGL 110, ENGL Elective</td>
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<td>ACCT 201-202</td>
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<td>MATH 105-106</td>
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<td>CIS 210</td>
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<td>HIST Elective</td>
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<td>ECON 201-202</td>
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### SECOND YEAR

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### THIRD YEAR

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<td>RELS Elective A</td>
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<td>Non-Accounting Majors</td>
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<td>Major Field</td>
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<td>Major Field</td>
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<td>Arts, Business or Science Electives</td>
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### FOURTH YEAR

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<td>Accounting Majors</td>
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<td>ACCT 303</td>
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<td>Law 304</td>
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<tr>
<td></td>
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</table>
Major Fields

Accounting Major:
Required: LAW 304, ACCT 301, 302, 303, 401, 405, 409, plus three credits from the following: ACCT 320, 404, 410, 421, 425, and 435.

Computer Information Systems Major:
Required: CIS 301, 305, 310, 326, and 431.

Economics Major:
Required: ECON 301, 302, 334, and 433. Plus three credits from the following: ECON 333, 405, 420, 421, 441, 471, and 472.

Finance Major:
Required: FIN 302, 308, 420, and 436, and three credits from the following: FIN 320, 408, 416, 440 and 442.

Global Business Studies
(Second Major Only):
Required: MGMT 309, ECON 334, MKTG 412. Plus six credits from the following: ECON 421, FIN 436, MKTG 414, GOVT 309, 351, 357, INTL 405. No more than three elective credits may be taken from any one discipline.

Management Major:
Required: MGMT 309, 315, 420 and six credits from the following: MGMT 304, 305, 308, 316, 441, 450, 460, 470.

Marketing Major:
Required: MKTG 303, 307, 403 and 412. Plus 3 credits from the following: MKTG 304, 305, 308, 311, 315, 321, 413, 414.

Minor Fields

The following minor program may be taken in School of Business:

Accounting: 11 credits: ACCT 301, 302, plus three credits from the following: ACCT 303, 320, 401, and 409.

Computer Information Systems: 9 credits: CIS 301, 305 and 310 or 326.

Economics: 9 credits: ECON 301, 302 and a three-credit approved course in economics.

Finance: 9 credits: FIN 302, 308 and 420.

Global Business Studies: 9 credits: MGMT 309, ECON 334 and MKTG 412.

Management: MGMT 315 and 6 credits of approved courses in addition to MGMT 201 taken by all students.

Marketing: MKTG 307 and 6 credits of approved courses in addition to MKTG 201 taken by all students.

The following minor programs may be taken in School of Arts:

Communications: 15 credits. The minor must be approved by the chair.

English: 15 credits from courses numbered 300 or above including ENGL 351-352 or 353-354.

Fine Arts: 15 credits with 12 credits taken at either Mt. St. Vincent or the National Academy of Design and including one course in drawing and one art history course taken at Manhattan College or at the College of Mt. St. Vincent.

Art History (Fine Arts Department): 15 credits of approved Art History courses. A studio course may be substituted for one of the art history courses.

Studio Art (Fine Arts Department): 15 credits of approved Studio courses. An art history course may be substituted for one of the studio courses.

Government: 15 credits: GOVT 201 or 203, 309, plus 9 credits of electives.

History: 15 credits of approved courses. 3 of these credits may be used to satisfy the History requirement for all students.

International Studies: 15 credits: ECON 334, GOVT 441, HIST 407, and INTL 201. Three of these credits may be used to satisfy the History requirement.

Modern Foreign Language: 15 credits of approved courses.

Peace Studies: 15 credits: ECON 320, HIST 431, RELS 433, PEAC 419, plus 3 credits of electives from Peace Studies Program.

Philosophy: 15 credits in Philosophy courses which normally should include PHIL 201, and one major author course from among PHIL 309, 310, 311, 312, 313, 317, 321, 322, 323 and 325.
Psychology: 12 credits of approved courses in addition to PSYC 203 taken by all students.

Religious Studies: 6 credits of approved courses in addition to 9 credits taken by all students.

Sociology: 15 credits: Any 12 credits chosen by the student after consultation with the Department Chair, in addition to SOC 201 taken by all students.

Urban Affairs: A total of 15 credit hours is required, including URBN 401 and other courses selected from the core curriculum described on page 275.

The following minor programs may be taken in School of Science:

Biology: 15 credits of approved courses on the 200-400 level. 6 of these credits may be used to satisfy the Science requirement for all students.

Chemistry: 14 credits of required courses: CHEM 105, 106, and CHEM 319, 335. Students weak in high school chemistry should take CHEM 100 before beginning CHEM 105.

Mathematics: 15 credits: MATH 103 or 106, 104, 201 and 9 credits of approved courses in mathematics.

Computer Science: 15 credits: CMPT 101, 102, and three more approved upper division courses.

EDUCATION

Historical Note

Teacher preparation began at Manhattan College in the late 1800's. By 1921, the College was offering programs for the preparation of Sisters and Brothers of the Christian Schools. In 1964, a Division of Teacher Preparation was established with responsibility for programs leading to teacher certification and was extended to a School of Education in 1970. As of 2001, the School of Education includes Undergraduate Education Programs leading to certification at the Childhood and Adolescent levels as well as a Dual Certification Program in Childhood/Special Education. In addition, the School offers a Five-Year Program in Childhood/Special Education leading to a B.S. in Childhood Education and an M.S. in Special Education with certification in each. Graduate Programs are available in Special Education, Counseling, and Administration. The School offers Programs in Physical Education including majors in Teacher Preparation for grades K-12 and Exercise Science. The final Programs within the School involve Radiological and Health Professions and include Programs in Nuclear Medicine Technology, Radiation Therapy Technology, Allied Health and advanced standing Programs in the Radiological and Health Sciences and Allied Health. In 2005, the teacher preparation programs received accreditation from the Teacher Education Accreditation Council (TEAC).

Objectives

In the tradition of Saint John Baptist de La Salle, the “Patron of all Teachers,” the School of Education prepares dedicated professionals for careers in teaching and allied health services. A strong liberal arts and sciences education emphasizes effective communication, scientific literacy, and multi-cultural awareness. Coursework and practical experiences in Education provide those skills necessary for work in a school or clinical setting. The School seeks to develop broadly educated teachers and health service professionals who possess competencies necessary for certification in their area of study or for graduate study.
The Teacher Preparation Programs at Manhattan College simultaneously meet the requirement of the college for excellence in core curriculum, academic concentrations and pedagogy; as well as standards established by New York State for teacher certification. The programs are designed to be consistent with the LaSallian tradition of excellence in teaching, respect for individual dignity, and commitment to social justice principles, on which the college was founded.

The goal of the Education Faculty is the preparation of professional educators who are reflective, scholarly and committed to the education of all learners. Students examine the theoretical foundations of learning and teaching in relation to psychological, philosophical, historical and sociological issues. This theoretical foundation is applied to the practice of teaching and learning as students engage in field-based experiences in the context of a diverse, contemporary educational environment. The total Manhattan College experience is designed to prepare graduates who are self-directed learners, effective teachers, informed professionals and caring human beings committed to the education of all learners.

Curricula

A strong core of liberal arts and science courses is central to all programs in Education. Each Teacher Preparation Program has three components; the core requirements in the liberal arts and sciences; an academic concentration and the professional education component of the program. Physical Education and Radiological and Health Professions Programs include those courses that provide necessary professional expertise. All students in Education complete a culminating experience of student teaching, professional practicum, or clinical internship where they are expected to display the ability to apply knowledge gained through previous course work and field experiences. The curricula of the Childhood Education, Adolescent, Dual–Childhood/Special Education, and Physical Education Programs are designed for traditional undergraduate students who are pursuing their degrees full-time. Most of the courses in education are offered during the day and require extensive work in a school setting between the hours of 8:30 a.m. until 2:30 p.m. The College does not have an alternative certification program.

Advising

Students in the Childhood Education, Adolescent, and Dual–Childhood/Special Education, and Physical Education Programs have at least two assigned advisors in their Departments. Students have a third advisor in the content specialization (i.e., English, Math). Each student receives a checklist of courses required for graduation based on his/her education program and content specialization.

Students are required to meet with their Faculty Advisor to discuss individual academic and professional progress, and course scheduling each semester. Once students have met with and received the signature of their Faculty Advisor they must then submit their schedule to the Academic Advisor for approval. While faculty advisors are available for academic counseling and guidance, the student is ultimately responsible for academic and professional decisions.

1. The Faculty Advisor provides guidance through the program and consultation related to professional issues. This may include selecting an academic concentration, identifying appropriate electives or discussing graduate school or employment options. The education advisor is the sole faculty advisor for students who choose a General Studies content specialization.

2. The Academic Advisor for the School of Education oversees course scheduling for registration. The academic advisor also monitors students’ compliance with requirements for all undergraduate certification programs, the College’s academic standards, and New York State teacher certification.

3. The Content Specialization Faculty Advisor provides guidance to assure that the student takes the required courses in her/his content specialization area and offers assistance in selecting the most appropriate electives for each student. Some Content Specialization advisers also sign the course registration along with the academic advisor for the School of Education.
Criteria for Formal Admission into Teacher Education in the Education Department

1. Receive a grade of C+ or better in English 110. Students who receive a grade of C or C- must take ENGL 210 as a follow-up to ENGL 110. Students who receive a grade of D must retake ENGL 110.

2. Successfully complete core math requirements with a grade of “C” or better.

3. Complete two required education courses from the following list with a 2.5 grade point average or better. (Educ 201, 205, 202, 303, 318 or 301).

4. Receive a majority vote from education faculty members indicating that you exhibit professional behavior as defined by Program Faculty and as stated on course syllabi.

5. Have an overall Grade Point Average of 2.5 and an average of 2.5 in your academic concentration.

6. Show evidence of having passed the Liberal Arts and Science Test (LAST) before or during the sophomore year. Students must submit to the Dean’s Office a copy of their scores from NES.

7. Successfully complete PHED 110, Personal Wellness with a grade of “C” or better. SAVE and Child Abuse requirements are contained within this course.

Students applying for formal admission into teacher education can receive one of three responses:

1. Unconditional admittance into the Program. If the student successfully meets all criteria he/she is formally admitted into the Program and may proceed with the program of studies.

2. Conditional admittance into the Program. If the student has met most criteria and will be eligible for unconditional admittance by the end of the following semester s/he may continue and enroll in education courses for that semester. At the end of the conditional semester the student automatically advances to unconditional admittance if all criteria are met. If the conditions are not met, the student will not be allowed to take additional upper division education courses until unconditional status is achieved. The student must reapply if unconditional status is not met by the end of the conditional semester.

3. Denied admittance into the Program. If a student has a number of deficiencies that will take longer than one semester to correct, his/her application will be denied. The student will not be allowed to continue with education classes until conditional admittance is achieved. When conditional admittance status is achieved the student must meet the criteria listed under conditional admittance. The student in this category must reapply for admission to teacher education when s/he can document having met the criteria.

Note: Students who do not achieve unconditional or conditional admittance into the Education Program by the end of the second year may take longer than four years to complete the program. The above criteria are designed for students who indicate their intent to pursue Education when they enter Manhattan College as first-year students and follow the prescribed program. Internal and external transfer students will be evaluated on an individual basis for entrance into the program and must meet all criteria.

Requirements for student teaching, professional practicum, clinical internship

To register for student teaching, professional practicum, or clinical internship, a student must meet the following School requirements:

1. Enrollment in the School;

2. Cumulative index of 2.50 or better;

3. Major (i.e., education) and academic concentration (i.e., Math, English) index of 2.50 or better;

4. A grade of “C” or better in all Education and concentration course work; Please note that overall Education and concentration GPAs must average at least 2.5 even though a few “C” grades are obtained.

5. Recommendation by the Chair of the Department or the Program Director;

6. Senior status required for student teaching or professional practicum;
7. Present evidence of having passed the Assessment of Teaching Skills—Written (ATS-W). Students must submit to the Dean’s Office a copy of their scores from NES.

8. Receive a recommendation from a faculty member in the academic concentration with whom you have had a class.

Additional requirements may be imposed by the student’s major department. Students already graduated from the School usually may not register for undergraduate student teaching, professional practicum or clinical internship.

**Teacher Certification**

The School of Education has been approved by the New York State Education Department to offer course work leading to the initial certificate. Certification can be achieved in the following fields: childhood education, grades 1-6; adolescent education, grades 7-12; physical education, grades K-12; dual certification in childhood and special education, grades 1-6. The initial certificate is valid for five years, beginning the first year the individual is employed as a teacher. In order for a student to be recommended by the Dean for initial certification, the following requirements must be met:

1. Completion of all course work with a cumulative index of 2.50 or better;
2. A passing grade in all courses;
3. A grade of “C” or better in all Education and concentration course work; Please note that overall Education and concentration GPAs must average at least 2.5 even though a few “C” grades are obtained.
4. Completion of New York State approved program of teacher preparation in the certification area;
5. Successful completion of student teaching with a grade of “C+” or better;
6. Successful completion of the appropriate sections of the New York State Teacher Certification Examinations: LAST, ATS-W and appropriate content specialty test/s (CSTs).
7. Completion of the application for certification (which may be obtained from the Office of the Dean of Education), payment of required fees; and return of the application to the Office of the Dean of Education;
8. Recommendation of the Dean of Education, the state certifying officer; and
9. Payment of all outstanding fees owed to the college.

**Transfer Students**

Students in good academic standing (minimum GPA 2.5) and possessing a desire for teaching or health services will be accepted for transfer to School of Education Programs from any program in the College after their first semester of study. Only those courses in which the student has received a “C” or better are transferable.

Transfer students from other accredited colleges who meet the requirements for admission at Manhattan College will be considered for transfer to School of Education Programs. Courses comparable to those required in the School of Education and in which the student achieved a minimum grade of “C” are transferable.

**Education Minor (does not lead to teacher certification)**

EDUC 201, 202, 303, and two from 301, 360, 402 or 406.

**Enrichment**

Success in health service and education areas depends in great measure on cultural awareness, knowledge in subject content, and skills in communication. Future professionals are urged to take advantage of campus activities of a religious, cultural, and academic nature. Participation in opportunities for self expression such as forums, dramatics, public speaking, and publications (particularly in Vistas, the Journal of the School of Education) is encouraged.

**Honors**

Students who maintain a 3.50 or better index may, after their first semester, be invited to participate in the Honors Program of the Schools of Arts, Education, and Science. This program offers additional cultural and intellectual experiences to the outstanding student.
In addition to the scholastic honors offered by the College, students in Education are eligible for membership in national honor societies. Students pursuing teacher certification are eligible as juniors or seniors for selection into the Mu Sigma Chapter of Kappa Delta Pi if they meet the criteria established by the society. Students in the Department of Physical Education may be invited to join the Alpha Eta Chapter of Phi Epsilon Kappa during their sophomore year. Students in the Radiological and Health Sciences may qualify for admission to Alpha Beta Gamma after their junior year.

**Job Opportunities for Teacher Education Graduates**

According to the National Center for Education Statistics’ Predicting the Need for Newly Hired Teachers in the U.S. to 2008-2009, nationwide some 2.4 million teachers will be needed in the next 11 years because of teacher turnover, retirement, and rising student enrollment.

**Programs of Study for Childhood, Adolescent, and Dual Childhood/ Special Education**

The first year of the program emphasizes courses in the liberal arts and sciences. The remaining three years of each program are arranged by developmental level (childhood or adolescent) according to the subject area the student is preparing to teach. If the student follows his/her prescribed program plan, requirements for graduation and initial teacher certification can be achieved in four years.

**Study Abroad**

Students interested in studying abroad should discuss their interest with the Academic Advisor by the second semester of freshman year. It is best to plan the semester of study abroad for the second semester of sophomore year or the first semester of junior year. Further information about study abroad opportunities is available through the Study Abroad Office.
## Childhood Education (Grades 1-6)

Students successfully completing all requirements will be recommended for New York State initial certification.

### FIRST YEAR

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</tr>
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### FOURTH YEAR

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<td>EDUC 438</td>
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</tr>
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<td>RELS Elective</td>
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</tr>
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### Total credits for graduation is: 130

Upward extension requires the following six additional hours: Education 376-380 – Curriculum and Methods of Teaching in Grades 7-9 (30 field hours in a middle school is required) and Education 375 – Theoretical Foundation of Teaching and Learning in the Middle School (30 field hours in a middle school is required).

To obtain NYS teaching certification for Grades 7-9, candidates must take an additional content specialty test in an appropriate subject.

Note: This is the general plan for Childhood Education, each student receives a specific program plan based on his/her selected academic concentration.

The following academic concentrations are available with the Childhood Education (Grades 1-6) Initial Certification, Dual-Childhood/Special Education, and the Five-Year Childhood/ Special Education Initial Certifications.
**BIOLOGY**
111-112, 113-114, 217, 225, 301, 302, 309, 319-320; Biology Electives, 3 credits; 12-14 additional science credits (other than Biology).

**CHEMISTRY**
101-102, 319-320, 323-324, 302, 309-310, 311, 335; Chemistry Electives, 3 credits; additional requirements — MATH 103-104; Physics Electives 6-8 credits.

**ENGLISH**
Required courses include: ENGL 306, 309, 310, 365, 372, plus either 326, 331, or 333. The remaining 12 credits must be chosen from 300 or 400 level electives.

**FRENCH**
30 credits of French (excluding the introductory level 101-102).

**GENERAL SCIENCE**
(52-56 credits) BIOL 111-113 and 112-114; CHEM 101-102; PHYSICS Electives 6 to 8 credits; SCI 201 and 202; and an 18 credit specialization in biology, chemistry or physics with all coursework at the 200 level or above.

**GENERAL STUDIES**
This concentration has a total of 30 credits. Students must select TWO areas of concentration and complete 15 credits in EACH area. At least one of the areas must be from list one, as follows: English, French, General Science, Mathematics, or Spanish. The other area of concentration can also be from list one, or from list two, as follows: Government, History, Psychology, or Sociology.

**MATHEMATICS**
103-104; 201, 213, 215, 311, 420, 421, 466 and one 3 credit elective.

**PSYCHOLOGY**
21-27 credits from PSYC 203, 205, 209, 315, 333, 340, 345, 346 and 321. An additional 3 to 9 credits from elective options: PSY 207, 216, 302, 342, 343, 347, and 421. (ED 303 is waived for PSYC 345-346, ED elective is required).

**SOCIAL STUDIES**
HIST 206, 207, 217, 218; World History, 3 credits; History electives, 9 credits; ECON, GOVT or SOC, 9 credits.

**SPANISH**
30 credits of Spanish (excluding the introductory level 101-102).

*Upward certification (Grade 7-9) is available.

**Upward certification in General Science has additional requirements beyond the six credits required in other areas.
Dual-Childhood/Special Education (Grades 1-6)

Students successfully completing all requirements will be recommended for New York State initial certification in childhood education and special education.

<table>
<thead>
<tr>
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Total credits for graduation is: 130

Upward extension requires the following six additional hours: Education 376-380 – Curriculum and Methods of Teaching in Grades 7-9. (30 field hours in a middle school is required) and Education 375 – Theoretical Foundation of Teaching and Learning in the Middle School (30 field hours in a middle school is required).

To obtain teaching certification for Grades 7-9, candidates must take an additional content specialty in an appropriate subject.

Dual-Childhood/Special Education majors will have to take two content specialty tests: multi-subject CST and the students with disability CST.

Note: This is the general plan for Dual-Childhood/Special Education, each student receives a specific program plan based on his or her selected academic concentration.

**Student teaching must be taken at different levels (Grades 1-3 and Grades 4-6) and one must occur in a regular education classroom and one in a special education or inclusion classroom.

Academic Concentrations available with Dual Certification are the same as listed with Childhood Education.
### Five-Year: Childhood/Special Education (Grades 1-6) (BS/MSED)

Students who complete the first semester of the second year with a cumulative index of 3.00 or better and grades of “B” or better in all education courses may apply for admission into the five-year BS/MSED program, which leads to certification in both Childhood and Special Education. Upon satisfactory completion of the fifth year, students will be recommended for professional certification in each area.

<table>
<thead>
<tr>
<th>FIRST YEAR</th>
<th>Credits</th>
<th>SECOND YEAR</th>
<th>Credits</th>
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<table>
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**Total credits for graduation is:** 152

Upward extension requires the following six additional hours: Education 376-380 – Curriculum and Methods of Teaching in Grades 7-9. (30 field hours in a middle school is required) and Education 375 – Theoretical Foundation of Teaching and Learning in the Middle School (30 field hours in a middle school is required).
EDUG Content Courses include 768, 775, 785, 805, 808, 812, 899, 753, 754

To obtain NYS teaching certification for Grades 7-9, candidates must take an additional content specialty test in an appropriate subject.

Five-Year Childhood/Special Education majors will have to take 2 content specialty tests: multi-subject CST and the students with disabilities CST.

Note: This is the general plan for Five-Year: Childhood/Special Education, each student receives a specific program plan based on his/her selected academic concentration.

Academic Concentrations available with the Five-Year Program are the same as listed with Childhood Education.

Fourth-year students in the Five-Year Program will be charged full-time undergraduate tuition, which includes payment for graduate courses in the fourth year.

Fifth-year students in the Five-Year Program will be charged graduate tuition per credit hour. Fifth year students should be aware that the College does not provide housing for graduate students and that there is very limited financial aid for graduate students.
Adolescence Education (Grades 7-12)

All future Adolescence Education teachers are required to successfully complete a concentration of at least 30 credits in one of the following areas: English, modern foreign language (Spanish, Italian or French), social studies, mathematics, biology, chemistry or physics.

Teacher of English (Grades 7-12)

<table>
<thead>
<tr>
<th>FIRST YEAR</th>
<th>Credits</th>
<th>SECOND YEAR</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fine Arts Elective or SPCH 204</td>
<td>3</td>
<td>FINE ARTS Elective or SPCH 204</td>
<td>3</td>
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<tr>
<td>ENGL 110</td>
<td>3</td>
<td>EDUC 201</td>
<td>3</td>
</tr>
<tr>
<td>ENGL Elective</td>
<td>3</td>
<td>EDUC 202</td>
<td>3</td>
</tr>
<tr>
<td>MATH 102 or 211</td>
<td>3</td>
<td>ENGL 306</td>
<td>3</td>
</tr>
<tr>
<td>LANG</td>
<td>6</td>
<td>ENGL 309</td>
<td>3</td>
</tr>
<tr>
<td>PHED 110</td>
<td>3</td>
<td>ENGL 310</td>
<td>3</td>
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<tr>
<td>RELS 110</td>
<td>3</td>
<td>ENGL 372</td>
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<tr>
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<td>3</td>
<td>RELS Elective</td>
<td>3</td>
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<tr>
<td>Total for Year</td>
<td>33</td>
<td>PHIL Elective</td>
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</tr>
<tr>
<td></td>
<td></td>
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<tr>
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<th>Credits</th>
<th>FOURTH YEAR</th>
<th>Credits</th>
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<tbody>
<tr>
<td>EDUC 301</td>
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<td>EDUC 303</td>
<td>3</td>
<td>EDUC 408</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 376</td>
<td>3</td>
<td>EDUC 453</td>
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<tr>
<td>EDUC 402</td>
<td>3</td>
<td>EDUC 454</td>
<td>3</td>
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<tr>
<td>EDUC 360</td>
<td>3</td>
<td>PHED 209</td>
<td>1</td>
</tr>
<tr>
<td>Elective*</td>
<td>3</td>
<td>RELS Elective</td>
<td>3</td>
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<tr>
<td>ENGL 326 or 331 or 333</td>
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<tr>
<td>Total for Year</td>
<td>33</td>
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</table>

Total credits for graduation is: **127**

NOTE: English electives must be 300-level or above and from a suggested list in consultation with English Faculty Advisor.

*Downward extension for grades 5 and 6 requires completion of the following six hours: EDUC 354 – Integrated Learning Grades 4-6 (30 field hours in grade 5 or 6 classroom) and EDUC 375 – Theoretical Foundation of Teaching and Learning in the Middle School (30 field hours in a middle school is required).
# Teacher of Spanish (Grades 7-12)

<table>
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<th>Credits</th>
<th>SECOND YEAR</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Fine Arts Elective or SPCH 204</td>
<td>3</td>
<td>FINE ARTS Elective or SPCH 204</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 110</td>
<td>3</td>
<td>EDUC 201</td>
<td>3</td>
</tr>
<tr>
<td>ENGL Elective</td>
<td>3</td>
<td>EDUC 202</td>
<td>3</td>
</tr>
<tr>
<td>MATH 102 or 211</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPAN 209*</td>
<td>3</td>
<td>SPAN 340</td>
<td>3</td>
</tr>
<tr>
<td>SPAN 210*</td>
<td>3</td>
<td>SPAN 341</td>
<td>3</td>
</tr>
<tr>
<td>PHED 110</td>
<td>3</td>
<td>SPAN 350</td>
<td>3</td>
</tr>
<tr>
<td>RELS 110</td>
<td>3</td>
<td>2nd LANG</td>
<td>6</td>
</tr>
<tr>
<td>SCI</td>
<td>6</td>
<td>RELS Elective</td>
<td>3</td>
</tr>
<tr>
<td>SOC ST Elec (Govt. or Soc.)</td>
<td>2</td>
<td>PHIL Elective</td>
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<tr>
<td>Total for Year</td>
<td>33</td>
<td>SOC SCI Elective</td>
<td>3</td>
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<td></td>
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<table>
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<th>FOURTH YEAR</th>
<th>Credits</th>
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<tr>
<td>EDUC 301</td>
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<td>Elective**</td>
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</tr>
<tr>
<td>EDUC 303</td>
<td>3</td>
<td>EDUC 406</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 360</td>
<td>3</td>
<td>EDUC 408</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 379</td>
<td>3</td>
<td>EDUC 453</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 402</td>
<td>3</td>
<td>EDUC 454</td>
<td>3</td>
</tr>
<tr>
<td>SPAN 307</td>
<td>3</td>
<td>Elective**</td>
<td>3</td>
</tr>
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<td>SPAN 351</td>
<td>3</td>
<td>PHED 209</td>
<td>1</td>
</tr>
<tr>
<td>SPAN Elective</td>
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<td>RELS Elective</td>
<td>3</td>
</tr>
<tr>
<td>2nd LANG</td>
<td>6</td>
<td>SPAN Electives</td>
<td>6</td>
</tr>
<tr>
<td>CMPT 214</td>
<td>2</td>
<td>Total for Year</td>
<td>28</td>
</tr>
<tr>
<td>Total for Year</td>
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</tr>
</tbody>
</table>

Total credits for graduation is: 127

**NOTE:** If student places above the 200 level, two additional electives will be selected in consultation with language advisor.

**Downward extension for grades 5 and 6 requires completion of the following six hours: EDUC 354 – Integrated Learning Grades 4-6 (30 field hours in grade 5 or 6 classroom) and EDUC 375 – Theoretical Foundation of Teaching and Learning in the Middle School (30 field hours in a middle school is required).
## Teacher of French (Grades 7-12)

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<th>Credits</th>
<th>SECOND YEAR</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Fine Arts Elective or SPCH 204</td>
<td>3</td>
<td>FINE ARTS Elective or SPCH 204</td>
<td>3</td>
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<tr>
<td>ENGL 110</td>
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<td>3</td>
</tr>
<tr>
<td>ENGL Elective</td>
<td>3</td>
<td>EDUC 202</td>
<td>3</td>
</tr>
<tr>
<td>MATH 102 or 211</td>
<td>3</td>
<td>FREN 340</td>
<td>3</td>
</tr>
<tr>
<td>FREN 209*</td>
<td>3</td>
<td>FREN 341</td>
<td>3</td>
</tr>
<tr>
<td>FREN 210*</td>
<td>3</td>
<td>FREN 350</td>
<td>3</td>
</tr>
<tr>
<td>PHED 110</td>
<td>3</td>
<td>2nd LANG</td>
<td>6</td>
</tr>
<tr>
<td>RELS 110</td>
<td>3</td>
<td>RELS Elective</td>
<td>3</td>
</tr>
<tr>
<td>SCI</td>
<td>6</td>
<td>PHIL Elective</td>
<td>3</td>
</tr>
<tr>
<td>SOC ST Elec (Govt. or Soc.)</td>
<td>3</td>
<td>SOC SCI Elec (Econ or Psyc)</td>
<td>3</td>
</tr>
<tr>
<td>Total for Year</td>
<td>33</td>
<td><strong>Total for Year</strong></td>
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</table>

<table>
<thead>
<tr>
<th>THIRD YEAR</th>
<th>Credits</th>
<th>FOURTH YEAR</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 301</td>
<td>3</td>
<td>Elective**</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 303</td>
<td>3</td>
<td>EDUC 406</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 360</td>
<td>3</td>
<td>EDUC 408</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 379</td>
<td>3</td>
<td>EDUC 453</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 402</td>
<td>3</td>
<td>EDUC 454</td>
<td>3</td>
</tr>
<tr>
<td>FREN 303</td>
<td>3</td>
<td>Elective**</td>
<td>3</td>
</tr>
<tr>
<td>FREN 351</td>
<td>3</td>
<td>PHED 209</td>
<td>1</td>
</tr>
<tr>
<td>FREN Elective</td>
<td>3</td>
<td>RELS Elective</td>
<td>3</td>
</tr>
<tr>
<td>2nd LANG</td>
<td>6</td>
<td>FREN Electives</td>
<td>6</td>
</tr>
<tr>
<td>CMPT 214</td>
<td>3</td>
<td>Total for Year</td>
<td>28</td>
</tr>
<tr>
<td>Total for Year</td>
<td>33</td>
<td><strong>Total for Year</strong></td>
<td>33</td>
</tr>
</tbody>
</table>

Total credits for graduation is: 127

**NOTE:** *If student places above the 200 level, two additional electives will be selected in consultation with language advisor.

**Downward extension for grades 5 and 6 requires completion of the following six hours: EDUC 354 – Integrated Learning Grades 4-6 (30 field hours in grade 5 or 6 classroom) and EDUC 375 – Theoretical Foundation of Teaching and Learning in the Middle School (30 field hours in a middle school is required).
**Teacher of Social Studies (Grades 7-12)**

<table>
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<tr>
<th>FIRST YEAR</th>
<th>Credits</th>
<th>SECOND YEAR</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fine Arts Elective or SPCH 204</td>
<td>3</td>
<td>FINE ARTS Elective or SPCH 204</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 110</td>
<td>3</td>
<td>EDUC 201</td>
<td>3</td>
</tr>
<tr>
<td>MATH 102 or 211</td>
<td>3</td>
<td>EDUC 202</td>
<td>3</td>
</tr>
<tr>
<td>LANG</td>
<td>6</td>
<td>ENGL Elective</td>
<td>3</td>
</tr>
<tr>
<td>PHED 110</td>
<td>3</td>
<td>SOC 201 (Fall)</td>
<td>3</td>
</tr>
<tr>
<td>RELS 110</td>
<td>3</td>
<td>HIST 200</td>
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</tr>
<tr>
<td>SCI</td>
<td>6</td>
<td>HIST 206 (Fall)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 206 (Fall)</td>
<td>3</td>
<td>HIST 217 (Fall)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 207 (Spring)</td>
<td>2</td>
<td>HIST 218 (Spring)</td>
<td>3</td>
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<tr>
<td>Total for Year</td>
<td>33</td>
<td>Total for Year</td>
<td>33</td>
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<table>
<thead>
<tr>
<th>THIRD YEAR</th>
<th>Credits</th>
<th>FOURTH YEAR</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>EDUC 301</td>
<td>3</td>
<td>Elective**</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 303</td>
<td>3</td>
<td>EDUC 406</td>
<td>3</td>
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<tr>
<td>EDUC 360</td>
<td>3</td>
<td>EDUC 408</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 377</td>
<td>3</td>
<td>EDUC 453 (Fall)+</td>
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</tr>
<tr>
<td>EDUC 402</td>
<td>3</td>
<td>EDUC 454 (Fall)+</td>
<td>3</td>
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<tr>
<td>GOVT 251 or 205</td>
<td>3</td>
<td>RELS Elective</td>
<td>3</td>
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<tr>
<td>CMPT 214</td>
<td>3</td>
<td>ECON 202</td>
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<td>HIST Elective *</td>
<td>3</td>
<td>GOVT 203 (Fall)</td>
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<td>3</td>
<td>PHED 209</td>
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<tr>
<td>HIST (World)*</td>
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<td>HIST 490 (Spring)</td>
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<td>Total for Year</td>
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<td>Total for Year</td>
<td>28</td>
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</tbody>
</table>

**Total credits for graduation is:** 127

**NOTE:** *HIST electives, pick 2 from: 312, 314, 313, 316, 318, 307.*

**Downward extension for grades 5 and 6 requires completion of the following six hours: EDUC 354 – Integrated Learning Grades 4-6 (30 field hours in grade 5 or 6 classroom) and EDUC 375 – Theoretical Foundation of Teaching and Learning in the Middle School (30 field hours in a middle school is required).**

+ **It is recommended that student teaching be taken during Fall semester due to the scheduling of History 490 in the Spring.**
### Teacher of Mathematics (Grades 7-12)

<table>
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<th>Credits</th>
<th>SECOND YEAR</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fine Arts Elective or SPCH 204</td>
<td>3</td>
<td>FINE ARTS Elective</td>
<td></td>
</tr>
<tr>
<td>CMPT 102</td>
<td>3</td>
<td>or SPCH 204</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 110</td>
<td>3</td>
<td>EDUC 201</td>
<td>3</td>
</tr>
<tr>
<td>PHED 110</td>
<td>3</td>
<td>EDUC 202</td>
<td>3</td>
</tr>
<tr>
<td>LANG</td>
<td>6</td>
<td>CMPT 114 or CMPT Elective</td>
<td>3</td>
</tr>
<tr>
<td>SOC SCI Elec (Econ. or Psyc.)</td>
<td>3</td>
<td>MATH 201</td>
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<tr>
<td>RELS 110</td>
<td>3</td>
<td>MATH 213*</td>
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<td>MATH 103</td>
<td>3</td>
<td>MATH 215</td>
<td>3</td>
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<td>MATH 104</td>
<td>3</td>
<td>SCI</td>
<td>6</td>
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<td>Total for Year</td>
<td>30</td>
<td>SOC ST Elec (Govt or Soc)</td>
<td>3</td>
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<td></td>
<td></td>
<td>PHIL Elective</td>
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<td>Total for Year</td>
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<table>
<thead>
<tr>
<th>THIRD YEAR</th>
<th>Credits</th>
<th>FOURTH YEAR</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 301</td>
<td>3</td>
<td>ENGL Elective</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 303</td>
<td>3</td>
<td>EDUC 406</td>
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<tr>
<td>EDUC 360</td>
<td>3</td>
<td>EDUC 408</td>
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</tr>
<tr>
<td>EDUC 378</td>
<td>3</td>
<td>EDUC 453</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 402</td>
<td>3</td>
<td>EDUC 454</td>
<td>3</td>
</tr>
<tr>
<td>MATH 311 or 466</td>
<td>3</td>
<td>RELS Elective</td>
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</tr>
<tr>
<td>MATH 313 or 315</td>
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<td>Elective</td>
<td>3</td>
</tr>
<tr>
<td>MATH 420</td>
<td>3</td>
<td>MATH 311 or 466</td>
<td>3</td>
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<tr>
<td>MATH 421</td>
<td>3</td>
<td>MATH 313 or 315</td>
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<td>3</td>
<td>MATH 460</td>
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<tr>
<td>CMPT 214</td>
<td>3</td>
<td>PHED 209</td>
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<tr>
<td>Total for Year</td>
<td>33</td>
<td>Total for Year</td>
<td>31</td>
</tr>
</tbody>
</table>

Total credits for graduation is: 127

*MATH 213 MUST be taken Fall of the second year.

Student may complete CMPT Sci. minor by taking CMPT 101, CMPT 102 and 3 additional approved courses. All CMPT electives must be approved by mathematics advisor or chair.

Downward extension for grades 5 and 6 requires completion of the following six hours: EDUC 354 – Integrated Learning Grades 4-6 (30 field hours in grade 5 or 6 classroom) and EDUC 375 – Theoretical Foundation of Teaching and Learning in the Middle School (30 field hours in a middle school is required).
### Teacher of Biology (Grades 7-12)

<table>
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<th>Credits</th>
<th>SECOND YEAR</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 111/113</td>
<td>4</td>
<td>FINE ARTS Elective</td>
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</tr>
<tr>
<td>BIO 112/114</td>
<td>4</td>
<td>or SPCH 204</td>
<td>3</td>
</tr>
<tr>
<td>Fine Arts Elective or SPCH 204</td>
<td>3</td>
<td>EDUC 201</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 110</td>
<td>3</td>
<td>EDUC 202</td>
<td>3</td>
</tr>
<tr>
<td>LANG</td>
<td>6</td>
<td>BIO 217</td>
<td>3</td>
</tr>
<tr>
<td>PHED 110</td>
<td>3</td>
<td>BIO 223</td>
<td>3</td>
</tr>
<tr>
<td>RELS 110</td>
<td>3</td>
<td>BIO 225</td>
<td>3</td>
</tr>
<tr>
<td>MATH 103</td>
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<td>CHEM 101/102</td>
<td>8</td>
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<td>MATH 104</td>
<td>3</td>
<td>RELS Elective</td>
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<td>Total for Year</td>
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<td>SOC ST Elec (Govt or Soc)</td>
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<td></td>
<td>Total for Year</td>
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<th>Credits</th>
<th>FOURTH YEAR</th>
<th>Credits</th>
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<tbody>
<tr>
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<tr>
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<td>3</td>
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**Total credits for graduation is:** 127

*For New York City License you will need to take both courses.*

Downward extension for grades 5 and 6 requires completion of the following six hours: EDUC 354 – Integrated Learning Grades 4-6 (30 field hours in grade 5 or 6 classroom) and EDUC 375 – Theoretical Foundation of Teaching and Learning in the Middle School (30 field hours in a middle school is required).
# Teacher of Chemistry (Grades 7-12)

<table>
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Total credits for graduation is **127**

*For New York City License you will need to take both.

**Downward extension for grades 5 and 6 requires completion of the following six hours: EDUC 354 – Integrated Learning Grades 4-6 (30 field hours in grade 5 or 6 classroom) and EDUC 375 – Theoretical Foundation of Teaching and Learning in the Middle School (30 field hours in a middle school is required).
## Teacher of Physics (Grades 7-12)

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<td>LANG</td>
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<tr>
<td>CHEM 101</td>
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<td>ENGL Elective</td>
<td>3</td>
<td></td>
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<td>CHEM 102</td>
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<td>RELS Electives</td>
<td>6</td>
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<td>PHYS 309</td>
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<td>PHYS 441</td>
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<td>EDUC 402</td>
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<tr>
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<td>33</td>
<td>Total for Year</td>
<td>29</td>
<td></td>
</tr>
</tbody>
</table>

Total credits for graduation is: 127

*For New York City License you will need to take both courses.
The Physical Education Curriculum

This curriculum is structured to provide students with a breadth of experience in the liberal arts and sciences and professional subjects. Religious studies and philosophy requirements seek to present the values expected of a person preparing for a professional career. Every effort is made in the professional courses to correlate the theory of general education as it applies to physical education.

The curriculum provides a suitable foundation for continued study in graduate schools in such areas as teaching physical education, special education, motor development, health, physical/occupational therapy, adult fitness and cardiac rehabilitation, administration and supervision, and recreation specializations.

Physical Education students may choose one of two majors: Physical Education Teacher K-12 or Exercise Science.

Physical Education Teacher K-12: This major prepares students to become competent teachers of physical education. It enables students to meet academic requirements for initial New York State teaching certification. State certification in Physical Education also covers certification in coaching.

Under advisement students can choose courses and field experiences that would enable them to learn the theory and skills for teaching physical education to persons with disabilities in the mainstream of schooling, in special education settings, or institutional or industrial settings.

Criteria for Formal Admission to Teacher Education in Physical Education

1. Receive a grade of C+ or better in English 110. Students who receive a grade of C or C- must take ENGL 210 as a follow-up to ENGL 110. Students who receive a grade of D must retake ENGL 110.

2. Successfully complete the Freshman and Sophomore Science Sequence, ENGL 110 and MATH 211 or 102.

3. Successfully complete EDUC 201 and 202 with a 2.5 grade point average or better.

4. Successfully complete PHED 217, complete the Sophomore Skills Sequence and PHED 213 with a grade point average of 2.5 or better.

5. Successfully complete Physical Education Majors Skills Camp with a grade point average of 2.5 or better.

6. Receive a majority vote from Physical Education faculty and exhibit professional behavior as defined by Program Faculty and stated on course syllabi.

7. Have an overall Grade Point Average of 2.5.

8. Have an average of 2.5 in your academic concentration.

9. Before moving to the junior year in Teacher Preparation the student must pass the L.A.S.T. Test. Students must submit to the Dean’s office a copy of their score from NES.

10. Successfully complete PHED 110, Personal Wellness, with a grade of “C” or better. SAVE and Child Abuse requirements are contained within this course.


Students applying for formal admission into teacher education can receive one of three responses:

1. **Unconditional** admittance into the program. If the student successfully meets all criteria he/she is formally admitted into the program and may proceed with the program of studies.

2. **Conditional** admittance into the program. If the student has met most of the criteria and will be eligible for unconditional admittance by the end of the following semester (fifth semester) he/she may continue in the program and enroll in physical education or education courses for that semester. At the end of the conditional semester, the student automatically advances to unconditional admittance if all criteria are met. If the conditions are not met, the student will not be allowed to take additional upper division physical education or education courses until unconditional status is achieved. The student must reapply if unconditional status is not met by the end of the conditional semester.
3. **Denied** for admittance into the program. If a student has a number of deficiencies which will take longer than one semester to correct, his/her application will be denied. The student will not be allowed to continue with physical education or education classes until conditional admittance is achieved. When conditional admittance status is achieved, the student must meet the criteria listed under conditional admittance. The student in this category must reapply for admission to teacher education in physical education when he/she can document having met the criteria for admission.

**Exercise Science:** Building on the scientific foundation of physical exercise, students may elect a major in Exercise Science. Students are expected to put in extensive hours in internships in corporate fitness and health and cardiac rehabilitation centers. A graduating senior is encouraged to take one of the following National Certification Exams or Programs: American College of Sports Medicine, Cooper Institute of Aerobic Research, National Strength and Conditioning Association, National Fitness Trainers Association, or the U.S.A. Weightlifting entry level certification.

**Minor in Business:** Exercise Science majors may earn a general minor in Business by completing the following five courses (15 credits: Economics 201 - Principles & Policies I: Macroeconomics; Finance 306 - Corporate Financial Management I; Accounting 203 - Elementary Accounting; Marketing 201 - Essentials of Marketing; Management 201 - Introduction to Management).

**Minor in Biology:** All physical education and exercise science majors are eligible for a minor in biology upon completion of 15 credits of coursework above the 100 level.

**Minor in Adapted Physical Education:** All physical education and exercise science majors are eligible for a minor in Adapted Physical Education upon completion of PHED 423, 424, 421, 209, EDUC 301, PSYC 310, with a grade of C or higher in each course.

**Minor in Psychology:** PSYC 203 and any additional 12 credits in psychology. Approval of chair required.

**Preparation for Graduate Study in Physical Therapy and Other Allied Health Professions**

Students preparing for professional school admission in physical therapy and other allied health professions should major in exercise science and heed the following advice. Prerequisites for graduate study may include but may not be restricted to the following elective courses:

- MATH 103
- MATH 211
- PHYS 105
- PHYS 106
- CHEM 105
- CHEM 106
- PSYC 421

Students should consult with intended graduate schools for specific admission requirements. Completion of the electives listed above will not guarantee admission to graduate school.
### Physical Education Teacher K-12 Major Requirements

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<thead>
<tr>
<th>FIRST YEAR</th>
<th>Credits</th>
<th>SECOND YEAR</th>
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<td>PHED 213</td>
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<td>PHED 110</td>
<td>3</td>
<td>PHED 217</td>
<td>3</td>
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<tr>
<td>PHED 246</td>
<td>2</td>
<td>PHED 228</td>
<td>2</td>
</tr>
<tr>
<td>Aquatics (any level)</td>
<td>1</td>
<td>PHED 337</td>
<td>2</td>
</tr>
<tr>
<td>ENGL 110</td>
<td>3</td>
<td>EDUC 201, 202</td>
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</tr>
<tr>
<td>BIOL 101</td>
<td>3</td>
<td>BIOL 207-208</td>
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</tr>
<tr>
<td>LANG</td>
<td>6</td>
<td>PHIL elective</td>
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<td>RELS 110</td>
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<td>Fine Arts Elective or SPCH 204</td>
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<td>PSYC 203</td>
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<td>Total</td>
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</table>

**MAY CAMP (12 Days) ++++**
- PHED 116         | 1       | (Take L.A.S.T. Test) |
- PHED 114         | 1       |                     |
- PHED 120         | 2       |                     |

**THIRD YEAR**
- PHED 305**      | 3       | PHED 411, 412      | 4       |
- PHED 112, 327, 331 | 6   | PHED 209          | 1       |
- BIOL 306 +      | 3       | PHED 423****      | 3       |
- BIOL 309 ++     | 2       | PHED 415, 416     | 6       |
- EDUC Elective (Sp. Ed) | 3   | PHED 414, 418***  | 5       |
- CMPT 214        | 3       | PHED Elective     | 2       |
- ENGL Elective   | 3       | EDUC 360          | 3       |
- RELS Elective   | 3       | Elective          | 3       |
- Elective        | 3       |                    | 27      |
- PHED 430        | 3       |                    |         |
- SOC 201         | 3       |                    |         |
- Total:          | 35      |                    |         |

Take ATS-W Test*                                        Take CST Test+++  

**Total for Graduation:** 131

*Pre-requisite PHED 305 and PHED 213

**Pre-requisite PHED 213.

***Pre-requisite BIOL 309

****Pre-requisite PHED 217

+Pre-requisite BIOL 207 and 208

++Pre-requisite BIOL 207

+++Pre-requisite PHED 418

++++Fitness Assessment is administered.

Students must achieve a grade of “C” or better in all PHED courses.

All 300 and 400 level Biology courses are considered major requirements and must be passed with a grade of “C” or better.
## Exercise Science Major Requirements

<table>
<thead>
<tr>
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<th>Credits</th>
<th>SECOND YEAR</th>
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<td>PHED 246</td>
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<td>PSYC 203</td>
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<td>RELS Elective</td>
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**MAY CAMP (12 Days)+**

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**Total for Graduation:** 130

*Pre-requisite BIOL 207 + 208

**Pre-requisite BIOL 207

***Pre-requisite PHED 217

****Pre-requisite Biol 309

Students must achieve a grade of “C” or better in all PHED courses.

All 300 and 400 level Biology courses are considered major requirements and must be passed with a grade of “C” or better.

+Fitness assessment is administered.
Radiological and Health Sciences Program with Advanced Standing

The Bachelor of Science degree in Radiological and Health Sciences with Advanced Standing is a continuing education program designed for the academic and professional development of radiological technologists in radiography, radiation therapy, nuclear medicine, ultrasound and MRI. The program can be completed part-time evenings or as a full-time student. This program is interdisciplinary in structure with courses in Radiological Sciences, Liberal Arts and an area of concentration in Health Care Administration or General Science or a Pre-Medical School track. The Pre-Medical School track is for students wishing to prepare for entrance to medical or dental schools; however, attendance in some day-time science courses would be required (please see Preparation for Medicine and Dentistry p. 74 or 136). The General Science track is for students wishing to prepare for entrance to programs in the Allied Health Professions (i.e., Physician Assistant, Physical Therapy, Master’s degrees in the Health Sciences, etc.). However, attendance in some day-time science courses would be required.

Radiological technologists, who are graduates of an accredited hospital-based radiological program, may receive up to 63 transfer credits towards the Bachelor of Science degree depending on the evaluation of the hospital training transcript. Additional transfer credits may be granted for courses taken at accredited collegiate institutions. Associate degree applicants can receive up to 63 transfer credits. The maximum number of credits that can be transferred for both hospital and college courses is 63 credits.
Allied Health Program

The Bachelor of Science degree program in Allied Health is a four-year program designed to prepare the student for employment or graduate study in the allied health field. Multidisciplinary in nature, this program provides the student with a broad understanding of health and illness from biological, psychological, and sociological perspectives. Course work is designed to develop critical thinking skills and a humanistic approach to health care delivery. An internship experience in the senior year consists of a placement in a setting relevant to the student’s chosen area of concentration and career goals.

All students are required to fulfill the college-core courses and complete the major course requirements. Additionally, students will select an area of concentration which more specifically prepares the student in his/her area of interest. The concentrations include Health Care Administration or General Science.

Allied Health Program with Advanced Standing

The Bachelor of Science degree in Allied Health with Advanced Standing is a continuing education program designed for the academic and professional development of all types of allied health technologists and professionals. The program can be completed part-time evenings or as a full-time student. This program is interdisciplinary in structure with courses in Basic Sciences, Health Care, Liberal Arts and an area of concentration in Health Care Administration or General Science or a Pre-Medical School track. The Pre-Medical School track is for students wishing to prepare for entrance to medical or dental schools. However, attendance in some day-time science courses would be required (please see Preparation for Medicine and Dentistry p. 74 or 136). The General Science track is for students wishing to prepare for entrance to programs in the Allied Health Professions (i.e. Physician Assistant, Physical Therapy, Master’s degrees in the Health Sciences, etc.); however, attendance in some day-time science courses would be required.

Allied health technologists and professionals, who are graduates from an accredited hospital-based allied health program, may receive up to 63 transfer credits towards the Bachelor of Science degree depending on the evaluation of the hospital training transcript. Additional transfer credits may be granted for courses taken at accredited collegiate institutions. Associate degree applicants can receive up to 63 transfer credits. The maximum number of credits that can be transferred for both hospital and college courses is 63 credits.
Program Requirements

Bachelor of Science in Radiological and Health Sciences (Nuclear Medicine Technology)

This is a full-time program designed for students who have no previous experience in Nuclear Medicine Technology and wish to prepare themselves for a career in this field.

**FIRST YEAR**

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 103</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 105/106</td>
<td>8</td>
</tr>
<tr>
<td>MATH 112, 113</td>
<td>6</td>
</tr>
<tr>
<td>ENGL 110, English Elective</td>
<td>6</td>
</tr>
<tr>
<td>RELS Studies 110</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 203</td>
<td>3</td>
</tr>
<tr>
<td>CMPT 114</td>
<td>32</td>
</tr>
<tr>
<td>ENGL Elective</td>
<td>6</td>
</tr>
<tr>
<td>MATH 112, 113</td>
<td>6</td>
</tr>
<tr>
<td>CMPT 114</td>
<td>3</td>
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<tr>
<td>ENGL Elective</td>
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**SECOND YEAR**

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Credits</th>
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<tr>
<td>BIO 207, 208</td>
<td>6</td>
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<tr>
<td>CHEM 100</td>
<td>3</td>
</tr>
<tr>
<td>MATH 211</td>
<td>3</td>
</tr>
<tr>
<td>PHIL Elective</td>
<td>3</td>
</tr>
<tr>
<td>RELS 410</td>
<td>3</td>
</tr>
<tr>
<td>General Elective</td>
<td>3</td>
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<tr>
<td>PHED 209</td>
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**THIRD YEAR**

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RHS 275</td>
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<tr>
<td>RHS 331-332</td>
<td>6</td>
</tr>
<tr>
<td>RHS 317</td>
<td>3</td>
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<tr>
<td>RHS 301</td>
<td>3</td>
</tr>
<tr>
<td>RHS 340</td>
<td>2</td>
</tr>
<tr>
<td>RHS Concentration</td>
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<tr>
<td>RELS Elective</td>
<td>3</td>
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<tr>
<td>Summer Internship RHS 341</td>
<td>4</td>
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**FOURTH YEAR**

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Credits</th>
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<tbody>
<tr>
<td>RHS 450-451</td>
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<tr>
<td>RHS 326</td>
<td>3</td>
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<tr>
<td>RHS 404</td>
<td>3</td>
</tr>
<tr>
<td>RHS 460, 442</td>
<td>4</td>
</tr>
<tr>
<td>RHS Concentration</td>
<td>9</td>
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<tr>
<td>Humanities Elective</td>
<td>3</td>
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<tr>
<td>General Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits for Graduation: 126
### Program Requirements

**Bachelor of Science in Radiological and Health Sciences (Radiation Therapy Technology)**

This is a full-time program designed for students who have no previous experience in Radiation Therapy Technology and wish to prepare themselves for a career in this field.

<table>
<thead>
<tr>
<th>FIRST YEAR</th>
<th>Credits</th>
<th>SECOND YEAR</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 103</td>
<td>3</td>
<td>RHS 205, 275</td>
<td>4</td>
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<tr>
<td>PHYS 105/106</td>
<td>8</td>
<td>RHS 315, 276</td>
<td>6</td>
</tr>
<tr>
<td>MATH 112, 113</td>
<td>6</td>
<td>RHS 320</td>
<td>3</td>
</tr>
<tr>
<td>RELS 110</td>
<td>3</td>
<td>BIOL 207, 208</td>
<td>6</td>
</tr>
<tr>
<td>ENGL 110</td>
<td>3</td>
<td>CHEM 100</td>
<td>3</td>
</tr>
<tr>
<td>ENGL Elective</td>
<td>3</td>
<td>MATH 211</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 203</td>
<td>3</td>
<td>PHIL Elective</td>
<td>3</td>
</tr>
<tr>
<td>CMPT 114</td>
<td>3</td>
<td>RELS 410</td>
<td>3</td>
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</table>

Summer Internship RHS 280 4

32

<table>
<thead>
<tr>
<th>THIRD YEAR</th>
<th>Credits</th>
<th>FOURTH YEAR</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RHS 355, 356</td>
<td>6</td>
<td>RHS 435, 436</td>
<td>4</td>
</tr>
<tr>
<td>RHS 360, 361</td>
<td>4</td>
<td>RHS 404</td>
<td>3</td>
</tr>
<tr>
<td>RHS 357</td>
<td>3</td>
<td>RHS 440</td>
<td>1</td>
</tr>
<tr>
<td>RHS 358</td>
<td>3</td>
<td>RHS Concentration</td>
<td>12</td>
</tr>
<tr>
<td>RHS 317</td>
<td>3</td>
<td>RHS 326</td>
<td>3</td>
</tr>
<tr>
<td>RHS Concentration</td>
<td>9</td>
<td>RELS Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

Summer Internship RHS 362 4

32

| Total Credits for graduation: | 129 |
Admission to and continuation in the Clinical Internship courses in NMT and RTT require an overall Cumulative index of 2.5 and an overall Major Academic course index of 2.5 (see list of Major Academic courses below).

Admission to the Major Academic courses, which have Clinical Internship courses as prerequisites and corequisites, in the NMT and RTT programs requires an overall Cumulative index of 2.5 and a Major Academic course index of 2.5 (see list of Major Academic courses which have Clinical Internship courses as prerequisites and corequisites marked with an * below).

A grade of C or better is required in the Major Academic courses (see list of Major Academic courses below) for admission or continuation in Clinical Internship courses. The student must repeat the course and earn a grade of C or better before entering or continuing in Clinical Internship courses. (Please note that the Major Academic courses index must average to a 2.5 even though a few C grades are obtained in the Major Academic courses.)

A grade of C or better is required in the Clinical Internship courses (see list of Clinical Internship courses below) to continue in Clinical Internship courses. The student must earn a grade of C or better the next regular time that specific Clinical Internship course is offered before continuing in Clinical Internship courses.

If a grade of F is obtained in any Clinical Internship course, continuation in the Clinical Internship courses is not allowed.

Admission to the Clinical Internship courses in NMT and RTT is based upon the Faculty’s and Program Coordinator’s evaluation of the student’s attendance, punctuality, maturity, attitude, motivation, responsibility, interpersonal skills, attentiveness to detail, pleasantness and ability to perform the duties of a nuclear medicine or radiation therapy technologist.

Continuation in the Clinical Internship courses in NMT and RTT is based upon the successful completion of the Overall & Clinical Evaluations given the student by the Clinical Supervisor at the Clinical Affiliate and the ongoing evaluation by the Faculty and Program Coordinator of the student’s attendance, punctuality, maturity, attitude, motivation, responsibility, interpersonal skills, attentiveness to detail, pleasantness and ability to perform the duties of a nuclear medicine or radiation therapy technologist.

Due to the serious nature of the duties performed by the student in the Clinical Internship courses, the student is granted one opportunity at completing the Clinical Internship. If the student is removed from the clinical affiliate site by the clinical supervisor for valid reasons, the student will receive an F grade for that Clinical Internship course, the student will not be reassigned to another clinical affiliate site and will not be eligible to enroll in clinical internship courses. Students may appeal this decision to the Program Coordinator.

The written examination of the American Registry of Radiologic Technologists and/or the Nuclear Medicine Technology Certification Board for certification or registration as a Nuclear Medicine Technologist will be taken upon completion of all the requirements for the Bachelor of Science in Radiological and Health Sciences (Nuclear Medicine Technology).

The written examination of the American Registry of Radiologic Technologists for registration as a Radiation Therapy Technologist will be taken upon completion of all the requirements for the Bachelor of Science in Radiological and Health Sciences (Radiation Therapy Technology).

Approval for these examinations will be granted only after the student has met all responsibilities for successful completion of the program.

NMT and RTT students who are taking 4 credits of internship (5-days-a-week of internship) in the Fall or Spring semesters are limited to taking a maximum of 12 credits in that semester.
Program Requirements

Bachelor of Science in Radiological and Health Sciences with Advanced Standing Program

<table>
<thead>
<tr>
<th>Science Core Requirements:</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 100-Pre Calculus*</td>
<td>3</td>
</tr>
<tr>
<td>MATH 103, 104-Elementary Calculus**</td>
<td>6</td>
</tr>
<tr>
<td>MATH 211-Elementary Statistics*</td>
<td>3</td>
</tr>
<tr>
<td>RHS 315-Radiation Physics*</td>
<td>3</td>
</tr>
<tr>
<td>RHS 317-Radiation Biology*</td>
<td>3</td>
</tr>
<tr>
<td>RHS 320-Radiation Detection and Protection*</td>
<td>3</td>
</tr>
<tr>
<td>CMPT 114-Computer Programming and Uses*</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Radiological Science Course Electives:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>RHS 321- Diagnostic Radiology</td>
<td>3</td>
</tr>
<tr>
<td>RHS 322-Radiotherapy</td>
<td>3</td>
</tr>
<tr>
<td>RHS 323-Nuclear Medicine</td>
<td>3</td>
</tr>
<tr>
<td>RHS 324-Diagnostic Ultrasound</td>
<td>3</td>
</tr>
<tr>
<td>RHS 325-Magnetic Resonance Imaging</td>
<td>3</td>
</tr>
<tr>
<td>RHS 326-Cross-Sectional Anatomy</td>
<td>3</td>
</tr>
<tr>
<td>RHS 404 PET/CT and Fusion Imaging</td>
<td>3</td>
</tr>
</tbody>
</table>

**Credit Requirement:** 21

*Required of all students.

**Mathematics requirement for Pre-Medical School concentration.

<table>
<thead>
<tr>
<th>Liberal Arts Requirements:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 110, ENGL Elective</td>
<td>6</td>
</tr>
<tr>
<td>RELS 410</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 374</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 203</td>
<td>3</td>
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<tr>
<td>Liberal Arts Electives</td>
<td>6</td>
</tr>
</tbody>
</table>

**Credit Requirement:** 21

<table>
<thead>
<tr>
<th>Fields of Concentration</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Health Care Administration</td>
<td></td>
</tr>
<tr>
<td>RHS 470-Hospital Accounting</td>
<td>3</td>
</tr>
<tr>
<td>RHS 471-Hospital Organization and Management</td>
<td>3</td>
</tr>
<tr>
<td>RHS 472-Financial Management in the Health Industry</td>
<td>3</td>
</tr>
<tr>
<td>RHS 474-The Health Care Labor Organization</td>
<td>3</td>
</tr>
<tr>
<td>RHS 480-Planning for Health Care Services</td>
<td>3</td>
</tr>
<tr>
<td>RHS 481-Legal Aspects in Health Care</td>
<td>3</td>
</tr>
<tr>
<td>Health Care Administration or Business Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

**Credit Requirement:** 21

OR
b. General Science

BIOL 115- Principles of Biology I 
2
BIOL 117- Principles of Biology I Lab
2
BIOL 116- Principles of Biology II
2
BIOL 118- Principles of Biology II Lab
2
CHEM 105- Principles of Chemistry I
4
CHEM 106- Principles of Chemistry II
4
BIOL 211- Microbiology and Human Disease
3
Elective
2

Credit Requirement: 21

OR

c. Pre-Medical School

BIOL 111- General Biology I
2
BIOL 113- General Biology I Lab
2
BIOL 112- General Biology II
2
BIOL 114- General Biology II Lab
2
CHEM 101- General Chemistry I
4
CHEM 102- General Chemistry II
4
CHEM 319- Organic Chemistry I
3
CHEM 320- Organic Chemistry II
3
CHEM 323- Organic Chemistry I Lab
2
CHEM 324- Organic Chemistry II Lab
2
PHYS 107- Introductory Physics I
4
PHYS 108- Introductory Physics II
4

Credit Requirement: 34

Total Credits Required: 126

Note: This program can be completed part-time evenings or as a full-time student.

A Pre-Medical School track can be taken as the area of concentration for students wishing to prepare for entrance to Medical or Dental Schools. Consultation with the Program Director and a Health Professions Advisor is essential, and attendance in some day-time science courses would be required.

A General Science track can be taken as the area of concentration for students wishing to prepare for entrance to programs in the Allied Health Professions (i.e., Physicians Assistant, Physical Therapy, Master’s degrees in the Health Sciences, etc.) Consultation with the Program Director and a Health Professions Advisor is essential, and attendance in some day-time science courses would be required.

Students who are full-time in the Advanced Standing program may take up to 32 credits for the Fall and Spring semesters each academic year.

Students who have previously taken college courses in the curriculum must substitute the course(s) with courses related to that appropriate area of the curriculum.
Program Requirements

Bachelor of Science in Allied Health

Students wishing to prepare for immediate graduate study or entry-level employment in the health care industry should follow this program of study. The area of concentration should be selected in consultation with the faculty advisor.

FIRST YEAR Credits SECOND YEAR Credits
SOC 201 3 AHS 205 3
PHED 110 3 General Elective 3
CMPT Science 114 3 BIOL 207, 208 6
ENGL 110 3 RHS 205 3
ENGL Elective 3 BIOL 211 3
RELS 110 3 BIOL 221 3
MATH 102* 3 MATH 211 3
BIOL 115, 117** 4 PHED 209 1
BIOL 116, 118** 4 Area of concentration 6
PSYC 203 3

THIRD YEAR Credits FOURTH YEAR Credits
AHS 420 3 EDUC 406 3
SPCH 204 3 AHS 425*** 3
RELS 410 3 PHED 403 3
PHED 430 3 RELS Elective 3
SOC 335 3 General Elective 3
SOC 317 3 Area of concentration 15
Area of concentration 12

30

Total for Graduation 123

* Students taking the General Science concentration must take MATH 100 Pre-Calculus.

** Students taking the General Science concentration should see the faculty advisor regarding the appropriate Biology, Chemistry and Physics courses to take.

*** Please note this practicum course is 1-day-a-week for 8 hours per day. A Cumulative Index of 2.5 is required to take this practicum course.

The following areas of concentration are available in the Allied Health program.

Health Care Administration: ECON 201, 202; MKTG 201; RHS 470, 471, 472, 474, 481; FIN 306; Electives 6. Suggested Electives: FIN 307; PSYC 273, 274; RHS 480. Total 33 credits

General Science: CHEM 101, 102 or CHEM 105, 106 (see faculty advisor regarding General Chemistry placement); PHYS 105, 106 or PHYS 107, 108 (see faculty advisor regarding Physics placement); MATH 103; Electives 14. Electives will be dependent upon the student’s career goals and should be selected in consultation with a faculty advisor. Suggested electives include: CHEM 319, 320, 323, 324; BIOL 306, 309, 333, 334, 445; MATH 104; PHED 216, 418, 421, 423, 424; PSYC 421, 435. Total 33 credits.

NOTE: A grade of C or better in BIOL 207/208 and any Concentration course is required for Graduation.
Program Requirements

Bachelor of Science in Allied Health with Advanced Standing

Non-College/College Program Transfer Credits (maximum) 63

Core Requirements:
- MATH 102- Modern Math* 3
- MATH 100- Pre-Calculus** *** 3
- MATH 103/104- Elementary Calculus*** 6
- MATH 211- Elementary Statistics+ 3
- BIOL 207/208- Anatomy & Physiology+ 6
- CMPT 114- Computers & Their Uses+ 3
- AHS 205- The U.S. Health Care System+ 3
- AHS 420- Ethics in Health Care+ 3

Credit requirement: 21

+ Required of all students

* Mathematics requirement for Health Care Administration concentration

** Mathematics requirement for General Science concentration

*** Mathematics requirement for Pre-Med concentration

Liberal Arts Requirement:
- ENGL 110- College Writing 3
- RELS 410- Death as a Fact of Life 3
- PSYC 374- Organizational Psychology 3
- PSYC 203 3
- ENGL Elective 3
- Electives 6

Credit requirement: 21

Field of Concentration:

a. Health Care Administration:
- RHS 470- Hospital Accounting 3
- RHS 471- Hospital Organization & Management 3
- RHS 472- Financial Management Health Industry 3
- RHS 474- Health Care Labor Organization 3
- RHS 480- Planning for Health Care Services 3
- RHS 481- Legal Aspects in Health Care 3
- HCA or Business Elective 3

Credit requirement: 21

OR
b. General Science:
BIOL 115-Principles of Biology I 2
BIOL 117-Principles of Biology I Lab 2
BIOL 116-Principles of Biology II 2
BIOL 118-Principles of Biology II Lab 2
CHEM 105-Principles of Chemistry I 4
CHEM 106-Principles of Chemistry II 4
BIOL 211-Microbiology And Human Disease 3
Elective 2

Credit Requirement: 21

OR

c. Pre-Medical School:
BIOL 111- General Biology I 2
BIOL 113- General Biology I Lab 2
BIOL 112- General Biology II 2
BIOL 114- General Biology II Lab 2
CHEM 101- General Chemistry I 4
CHEM 102- General Chemistry II 4
CHEM 319- Organic Chemistry I 3
CHEM 320- Organic Chemistry II 3
CHEM 323- Organic Chemistry I Lab 2
CHEM 324- Organic Chemistry II Lab 2
PHYS 107- Introductory Physics I 4
PHYS 108- Introductory Physics II 4

Credit Requirement: 34

Total Credits Required for graduation: 126

Note: This program can be completed part-time evenings or as a full-time student.

The Pre-Medical School track can be taken as the area of concentration for students wishing to prepare for entrance to Medical or Dental Schools. Consultation with the Program Director and a Health Professions Advisor is essential, and attendance in some day-time science courses would be required.

The General Science track can be taken as the area of concentration for students wishing to prepare for entrance to programs in the Allied Health Professions (i.e., Physician Assistant, Physical Therapy, Master's degrees in the Health Sciences, etc.) Consultation with the Program Director and a Health Professions Advisor is essential, and attendance in some daytime science courses would be required.

Students who have previously taken College course(s) in the curriculum must substitute the course(s) with courses related to that appropriate area of curriculum.

Students who are full-time in the Advanced Standing program may take up to 32 credits for the Fall and Spring semesters each academic year.
ENGINEERING

Historical Note

At its beginning, engineering education at Manhattan developed out of a science program in coordination with liberal arts. In 1892, Civil Engineering and Electrical Engineering were among four curricula leading to the Bachelor of Science degree. Civil Engineering has continued uninterruptedly since. Electrical Engineering, suspended shortly after its introduction, was re-established as a degree program in 1935. Curricula in Mechanical Engineering, Chemical Engineering, and Environmental Engineering were introduced in 1957, 1958, and 1993 respectively, followed by Computer Engineering in 1998.

Mission Statement

The School of Engineering has developed the following mission statement with input from all constituents:

The mission of the Manhattan College School of Engineering is congruent with the mission of the College and prepares students for a productive and rewarding career in engineering or a related profession. The curriculum instills the techniques and skills of engineering design through the study of basic and advanced engineering science. This foundation is integrated with practice-oriented engineering design experience which addresses both technical and non-technical aspects of engineering practice. Students earning a Manhattan College engineering degree are prepared to enter the world of professional practice and to continue their studies through the pursuit of post-baccalaureate education.

The strong foundation coupled with thorough preparation in an engineering discipline ensures that the student will have life-long access to rapidly developing new technologies and prepares each student to be a citizen, an advocate, and a leader in the complex world of the 21st century.

Educational Objectives and Outcomes of Engineering

Graduates of the School of Engineering, who are practicing their profession will be valued by the engineering community for their ethical practices and moral character, leadership and involvement in engineering and related professions, dedication to the profession through self-improvement, and recognition that engineering is a service to humanity.

The Mission of the School of Engineering is consistent with the Lasallian Catholic traditions of Manhattan College. Graduates of its engineering programs are expected to meet high academic standards, reflect on moral and ethical considerations in all aspects of their lives, and appreciate the need for life-long learning in the fulfillment of professional goals.

The objectives of the School of Engineering embrace those of its individual programs and are summarized below. Program objectives are consistent with those of the School of Engineering. School of Engineering objectives are organized into three distinct categories: Employ the skills of the profession in their professional duties; Recognize the importance of ethics, values, and person-centered attitudes in the practice of the engineering art as reflective of the Lasallian Mission of the College; Appreciate the importance of life-long learning in their individual engineering disciplines.

These objectives are fostered by outcomes, as detailed below, that embody the skills and abilities envisioned for the school’s graduates:

Outcomes to sustain a graduate’s professional skills: have fundamental knowledge of science, mathematics, and engineering science; able to use the analytic tools of engineering including modeling, and analysis, using associated computer techniques; able to use a variety of communicative methods (verbal, written, graphic); able to solve open-ended problems as a result of design experience; understand how to work effectively in settings requiring teamwork.
Outcomes to support the awareness and importance of ethical elements within the practice of engineering: be aware of social justice issues through education consistent with the Lasallian traditions; understand issues related to the practice of the profession through a broad-based education in the humanities and social sciences; enable professionals to cope with social, ethical, and multi-cultural aspects of engineering from their values-centered educational experience.

Outcomes needed to appreciate the importance of life-long learning: be aware of educational needs to understand emerging technologies; undertake graduate education, continuing education and professional licensing.

Objectives are expected accomplishments of some or all engineering graduates during their first few years (3-5) after graduation.

Outcomes are considered to be those intellectual abilities and practical skills that a student is expected to possess at the time of graduation.

Engineering Education

The foundation of the engineering curriculum includes: (1) the study of science representing the current state of human knowledge of the physical world and its behavior; (2) the study of mathematics, the language and tool that engineers use to describe the physical world; (3) breadth of study in the humanities and social sciences, the basis for making ethical and moral engineering decisions; (4) development of the ability for independent learning and critical thinking; and, (5) development of skills in written, verbal, and graphical communication.

In an age of revolutionary advances in science and technology continual re-examination of trends in engineering education becomes imperative. Accordingly Manhattan’s engineering faculty, in consultation with a distinguished group of engineers and industrial leaders assembled from engineering-related organizations, the Manhattan College Council on Engineering Affairs, study and evaluate the concepts of engineering education and the College’s program. These studies re-emphasize the importance of humanities, mathematics and sciences as the foundation of engineering education. The engineering curriculum is, therefore, planned to provide the sound and broad education required in important branches of engineering.

Curricula

The engineering curricula have been designed with two premises in mind: one, that sound undergraduate engineering education must establish fundamental concepts at the expense of specialization; and two, that first-line engineering research, development or design requires post-collegiate specialization and advanced study through graduate work or industrial training, together with continuing self development.

The engineering curricula are four-year programs and lead to the bachelor of science degree in one of the traditional branches of engineering: Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, and Mechanical Engineering. Programs provide opportunities for minor studies or concentrations within its discipline. Despite the apparent division of engineering study into these curricula, there is a core engineering curriculum designed to offer the fundamental education required for all engineering students.

All students must complete ENGL 110. International students may be required to successfully complete ENGL 095 or ENGL 106 before enrolling in ENGL 110. Students graduating from an American high school may be required to complete ENGL 106 before enrolling in ENGL 110. Neither ENGL 095 nor ENGL 106 will count towards degree credit in any engineering program.

The curriculum for the first year is common to all branches of engineering. In order to enable a student to test his or her interest in one of the major engineering disciplines, he or she takes designated courses from this discipline in the sophomore year. The curricula of the various engineering majors are outlined at the end of this section.
Each curriculum offers four areas of study:

1. **Humanities and Social Science Studies:**
   Courses in this area comprise about one fifth of the entire curriculum and are conducted throughout the four years. This sequence aims to develop foundations for the fuller life of the student as a person. Courses in history, literature, philosophy, social sciences and religious studies blend humanistic and religious knowledge with the scientific and technological growth of the student so that he or she may progress as a more complete person toward a satisfying professional life.

2. **Mathematics and the Basic Sciences:**
   Approximately one quarter of the entire curriculum provides a thorough grounding in mathematics, at least through differential equations, and the basic sciences of chemistry and physics. These subjects are essential to all engineering students as the foundation of the engineering sciences. All students are required to pass a mathematics proficiency examination prior to taking Calculus I.

3. **The Engineering Sciences:**
   Fundamental concepts in engineering sciences provide a comprehensive foundation for all engineering disciplines. Topics such as statics, dynamics, electrical circuits, materials science, and thermodynamics integrate and build on principles introduced in mathematics, chemistry, and physics. Engineering science enables students to develop the competence to apply essential principles to synthesize and design engineering systems.

4. The fourth area of study is the major field which is described in the following paragraphs.

**The Major**

Although significant specialization is postponed until after the bachelor's degree, basic programs in Chemical, Civil, Computer, Electrical, or Mechanical Engineering are offered as a major, comprising about one half of each curriculum. Each student is able to concentrate on one aspect of the engineering discipline in greater depth and to develop proficiency in engineering design.

The programs in Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, and Mechanical Engineering are accredited at the basic level by the Engineering Accreditation Commission of the Accreditation Board of Engineering and Technology.

**Chemical Engineering**

**Mission Statement**

The mission of the Manhattan College Chemical Engineering Program is to provide students with the knowledge and skills to become practicing engineers and pursue advanced studies.

**Chemical Engineering**

Chemical engineers combine mathematics and advanced chemistry with engineering principles to design, develop and operate industrial processes for the manufacture of a host of products including fuels, gasoline, heating oil, plastics, synthetic fibers, paint, solvents, industrial chemicals and chemical intermediates, and a variety of consumer products such as foods, beverages, medicines and cosmetics. A chemical engineer's education permits the student to work in design and construction, computer simulation, specialty chemicals, industrial gases, food processing, petroleum fractionation, power generation, polymers, pollution prevention and remediation, safety and accident management, pharmaceuticals, biotechnology, or pulp and paper industries.

The Chemical Engineering program includes course work in material and energy balances, thermodynamics, reaction engineering, heat and mass transfer, separation processes, and plant design, plus elective courses such as transport phenomena, pollution control, biochemical
engineering, process safety, and engineering economy. Students may also select electives that count towards an Environmental Engineering minor. Course work is complemented by comprehensive laboratory facilities with experiments in both traditional and emerging technologies, ranging from unit operations such as distillation and filtration, to unique applications such as biological reactors and membrane separation processes. Computer usage, including software, programming, professional design packages and data acquisition, is integrated throughout the curriculum.

Students are prepared for both professional employment and graduate study. Chemical Engineering students who plan to enter the medical profession must complete Biology 111-112 and 113-114 in addition to the courses required for graduation.

Educational Objectives
The Chemical Engineering program at Manhattan College provides broad intellectual and social development for their students in order to accomplish the following objectives:

1. Prepare graduates to meet expectations of employers in the chemical and related industries, consulting firms and government agencies.

2. Prepare graduates to pursue advanced studies, if so desired.

Four-Year Program
The curriculum for the first year is common to all branches of engineering. In order to enable a student to test his or her interest in Chemical Engineering, he or she takes designated courses from the Chemical Engineering course offerings in their sophomore year. The junior and senior years allow for concentrated studies in a variety of traditional and emerging ideas including process design and control, transport phenomena, thermodynamics, reactor design and kinetics, separations, bioengineering, computer and environmental applications. A representative four-year program is shown below.
## Chemical Engineering

<table>
<thead>
<tr>
<th>FIRST YEAR</th>
<th>Credits</th>
<th>SECOND YEAR</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 101</td>
<td>4</td>
<td>ENGS 201/202, 205</td>
<td>6</td>
</tr>
<tr>
<td>ENGL 110</td>
<td>3</td>
<td>CHML 207, 208</td>
<td>6</td>
</tr>
<tr>
<td>ENGS 115, 116</td>
<td>6</td>
<td>CHEM 102</td>
<td>4</td>
</tr>
<tr>
<td>MATH 103, 104</td>
<td>6</td>
<td>PHYS 102</td>
<td>4</td>
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<tr>
<td>PHYS 101</td>
<td>4</td>
<td>MATH 201, 203</td>
<td>6</td>
</tr>
<tr>
<td>RELS 110</td>
<td>3</td>
<td>CHEM/BIO Elective 2</td>
<td>3</td>
</tr>
<tr>
<td>HSS Electives</td>
<td>6</td>
<td>ENGL Elective</td>
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</table>

<table>
<thead>
<tr>
<th>THIRD YEAR</th>
<th>Credits</th>
<th>FOURTH YEAR</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHML 305, 306</td>
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<tr>
<td>CHML 308</td>
<td>3</td>
<td>CHML 403, 404 1</td>
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<tr>
<td>CHML 316</td>
<td>3</td>
<td>CHML 405, 406</td>
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<tr>
<td>CHML 321</td>
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<td>CHML 423</td>
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<td>CHEM 310</td>
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<td>CHML 439</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 319, 320</td>
<td>6</td>
<td>HSS Elective</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 323</td>
<td>2</td>
<td>RELS Elective</td>
<td>3</td>
</tr>
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<td>HSS Elective</td>
<td>3</td>
<td>Science Elective 2</td>
<td>3</td>
</tr>
<tr>
<td>RELS Elective</td>
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<td>Total</td>
<td>34</td>
</tr>
<tr>
<td>Total</td>
<td>32</td>
<td>Total</td>
<td>130</td>
</tr>
</tbody>
</table>

Total Credits for graduation: 130

1 CHML 404 may be replaced by CHML 431 with permission of the Department Chair.

2 Electives to be selected from courses on an approved list provided by the Department of Chemical Engineering.
Civil and Environmental Engineering

Mission Statement
The department of Civil and Environmental Engineering at Manhattan College offers a wide range of technical education in these two related fields of study. Among these are separate curricula and majors in either Civil or Environmental Engineering as well as combined majors and minors (civil major, environmental minor or environmental major, civil minor). In addition, programs which combine a major in either area with a concentration in a variety of sub-disciplines such as structures, water and wastewater treatment, geotechnology, geoenvironmental studies, and transportation are also available. A strong and well-funded undergraduate research program that provides a unique and very important area for the enrichment of undergraduate engineering education is available to students.

Civil Engineering

Mission Statement
The mission of the Civil Engineering Program is to develop a custom-made educational plan for each of our students so upon graduation they are prepared to continue their graduate studies or enter into the Civil Engineering Profession. Our goal is to make sure that our students are ready to function professionally as responsible members of the global engineering community dedicated to life-long learning and collaborative practice, discovery and sharing a breadth of knowledge. The program puts particular emphasis on introducing the students to the broad range of Civil Engineering disciplines.

Civil engineers use mathematics, together with the basic sciences and engineering sciences, in the study of the structural, geotechnical, transportation, environmental, and water resources engineering disciplines. These disciplines allow a civil engineer, working to improve the environment, to plan, design and construct the industrial plants of the world, the great public works, the housing, the bases for space exploration and the transportation networks.

Structural engineering deals with the analysis, design and construction of buildings, bridges, ships, aircraft and other flight structures. Environmental Engineering with its emphasis on water resources and quality allows a civil engineer to analyze and model the environment, assess the effects of man’s activities on it, and design control facilities to ensure improvement and protection of the quality of our nation’s water resources. Geotechnical engineering concentrates on the study of the behavior of various soils and designs adequate supports for all structures resting on the earth and other planets. Several courses are also offered by the department related to the planning and designing of efficient transportation systems.

Students obtain a background in each of the above disciplines with one or more concentrations.

Within the department of Civil and Environmental Engineering, civil engineering majors have the opportunity to pursue an exclusive Civil Engineering curriculum. If, however, they wish to combine a civil major with an environmental minor, there is sufficient flexibility in the program to accommodate this.

Environmental Engineering

Mission Statement
The mission of the Environmental Engineering Program is to educate and mentor our students to enable them to become successful and responsible practitioners in the unique and ever-changing field of environmental science and engineering. The program emphasizes the need for a multi-disciplinary, hands-on education that fosters creativity, collaboration and life-long learning in keeping with the humanistic need to maintain and improve the quality of our local and global environments.

Environmental Engineering as a major is a broad and diverse discipline involving all phases of the basic sciences including mathematics, chemistry, biology, physics and computer science. This program is designed to prepare our students for lifelong careers in environmental consulting firms, government agencies and industry as we work to solve the many challenges of providing safe drinking water, clean air
and water quality, proper disposal of solid and hazardous waste, effective environmental site restoration, and responsible management of our natural resources.

Our undergraduate curriculum emphasizes the fundamentals of environmental chemistry, biology, engineering science, and engineering design during the freshman and sophomore years. In the junior and senior years, course work in water supply, air and water quality analysis, wastewater treatment, solid and hazardous waste management, environmental law, and risk assessment provides students with the strong technical expertise and breadth required in environmental engineering. Project-based learning is emphasized throughout the curriculum, particularly in The Company course sequence.

During the junior year, students work in groups directly with a faculty advisor and one or more practicing engineers in a one year, project-based course known as The Company. This course is designed to provide students with the opportunity to apply their technical knowledge to “real world” projects, while stressing oral and written communication, teamwork, project management, and other important skills that are valid in today’s workplace.

Within the Department of Civil and Environmental Engineering, Environmental Engineering majors have the opportunity to pursue an extensively Environmental curriculum. If, however, they wish to combine an Environmental major with a Civil or Geotechnical minor, there is sufficient flexibility in the program to accommodate this.

**Four-Year Program in Civil Engineering**

The curriculum for the first year is common to all branches of engineering. In order to enable a student to test his or her interest in Civil Engineering, he or she takes designated courses from the Civil Engineering course offerings in the sophomore year. The junior and senior years allow for concentrated studies in the areas of structural, environmental, geotechnic, and transportation engineering. A representative four-year program is shown below.
### First Year

<table>
<thead>
<tr>
<th>FALL</th>
<th>Credits</th>
<th>SPRING</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 103</td>
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<td>MATH 104</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 101</td>
<td>4</td>
<td>Physics 101</td>
<td>4</td>
</tr>
<tr>
<td>ENGS 115</td>
<td>3</td>
<td>ENGS 116</td>
<td>3</td>
</tr>
<tr>
<td>RELS 110</td>
<td>3</td>
<td>HSS (Elect)</td>
<td>3</td>
</tr>
<tr>
<td>HSS (Elect)</td>
<td>3</td>
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<td><strong>Total Credits:</strong></td>
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### Second Year

<table>
<thead>
<tr>
<th>FALL</th>
<th>Credits</th>
<th>SPRING</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MATH 201</td>
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<td>MATH 203</td>
<td>3</td>
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<td>4</td>
<td>SCIENCE/Physics 102</td>
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<td>ENGS 206</td>
<td>3</td>
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<td>3</td>
<td>ENGS 230</td>
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<tr>
<td>CIVL 301</td>
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<td>RELS (Elect)</td>
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### Third Year

<table>
<thead>
<tr>
<th>FALL</th>
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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CIVL 302</td>
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<td>ENGS 220</td>
<td>3</td>
</tr>
<tr>
<td>CEEN 303</td>
<td>3</td>
<td>CEEN 307</td>
<td>3</td>
</tr>
<tr>
<td>CEEN 304</td>
<td>1</td>
<td>CIVL 309</td>
<td>3</td>
</tr>
<tr>
<td>CIVL 305</td>
<td>3</td>
<td>CIVL 310</td>
<td>3</td>
</tr>
<tr>
<td>CIVL 306</td>
<td>3</td>
<td>CIVL 311</td>
<td>1</td>
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<tr>
<td>CEEN 308</td>
<td>3</td>
<td>CIVL 312</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>16</td>
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</tr>
<tr>
<td><strong>Total Credits:</strong></td>
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</table>

### Fourth Year

<table>
<thead>
<tr>
<th>FALL</th>
<th>Credits</th>
<th>SPRING</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CIVL (Elect)</td>
<td>3</td>
<td>CIVL 411 or ENVL 408</td>
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</tr>
<tr>
<td>CIVL (Elect)</td>
<td>3</td>
<td>CIVL 412</td>
<td>3</td>
</tr>
<tr>
<td>CIVL (Elect)</td>
<td>3</td>
<td>CIVL (Elect)</td>
<td>3</td>
</tr>
<tr>
<td>CIVL 409</td>
<td>3</td>
<td>ENGL (Elect)</td>
<td>3</td>
</tr>
<tr>
<td>CIVL 410</td>
<td>4</td>
<td>HSS (Elect)</td>
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</tr>
<tr>
<td>HSS (Elect)</td>
<td>3</td>
<td>RELS (Elect)</td>
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<tr>
<td></td>
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<td><strong>Total Credits:</strong></td>
<td>37</td>
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</tbody>
</table>

**Total credits for graduation:** 133

*CEEN refers to common courses between the Civil and Environmental programs*

*All boldface courses must be passed with a grade of C (2.0) or better.*
Comprehensive Examinations

Following the completion of the sophomore year, a comprehension examination on fundamentals will be given as a requirement for admission to the professional work of the junior and senior years. At the completion of the senior year, a comprehensive examination covering the four years of work including practical applications of basic engineering sciences and engineering principles will be given as a requirement for graduation.

Four-Year Program in Environmental Engineering

The curriculum for the first year is common to all branches of engineering. In order to enable a student to test his or her interest in Environmental Engineering, he or she takes designated courses from the Environmental Engineering course offerings in their sophomore year. The junior and senior years allow for concentrated studies in the areas of water supply, air and water quality analysis, wastewater treatment, solid and hazardous waste management, environmental law, and risk assessment. During the junior year, students work in small groups directly with a faculty advisor and one or more practicing engineers in a one-year, project-based course known as The Company. This course is designed to provide students with the opportunity to apply their technical knowledge to “real world” projects. A representative four-year program is shown below.
# Environmental Engineering

## FIRST YEAR

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 101</td>
<td>4</td>
<td>MATH 201, 203</td>
<td>6</td>
</tr>
<tr>
<td>ENGL 110</td>
<td>3</td>
<td>PHYS 102 or ENGS 203</td>
<td>4/3</td>
</tr>
<tr>
<td>ENGS 115, 116</td>
<td>6</td>
<td>CHEM 102</td>
<td>4</td>
</tr>
<tr>
<td>MATH 103, 104</td>
<td>6</td>
<td>BIOL 222</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 101</td>
<td>4</td>
<td>BIOL 224</td>
<td>1</td>
</tr>
<tr>
<td>RELS 110</td>
<td>3</td>
<td>ENGS 204, 206</td>
<td>6</td>
</tr>
<tr>
<td>HSS Electives</td>
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<td>ENGS 201/202 or 203 or 205</td>
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<td>ENVL 202</td>
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<td></td>
<td></td>
<td>ENGL Elective</td>
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<td><strong>Total</strong></td>
<td><strong>32</strong></td>
<td><strong>Total</strong></td>
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</table>

## THIRD YEAR

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CEEN 305</td>
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<td>ENVL 408</td>
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<td>CEEN 306</td>
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<tr>
<td>ENVL 303</td>
<td>3</td>
<td>ENVL 505</td>
<td>3</td>
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<tr>
<td>CEEN 307</td>
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<td>ENVL 506</td>
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<tr>
<td>ENVL 312</td>
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<td>ENGD 301, 302</td>
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<td>HSS Elective</td>
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<td>RELS Elective</td>
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<td>ENVL Electives(^1)</td>
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<td>RELS Elective</td>
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</table>

**Total credits for graduation:** 127/128

\(^1\) Students seeking to study Environmental Engineering in the fall of 2008 or after must consult the Dean of Engineering.
Electrical and Computer Engineering

Mission Statement
The mission of the Electrical Engineering and Computer Engineering programs is to foster in each student an ability and enthusiasm to work wisely, creatively, and effectively for the betterment of humankind, thereby promoting future success in the profession. Central to the programs are certain principles, including the importance of collaboration, the discovery and sharing of knowledge, the appreciation of ethical, safety, and economic concerns, and the need for life-long learning and advanced study.

Computer Engineering
The application of computer-based technology is growing at a phenomenal rate. In fact, it pervades our lives. As a result, there is ongoing demand for engineers who can build complex systems which integrate computer hardware and software. This has given rise to the field of Computer Engineering. By combining the core courses in Electrical Engineering and Computer Science, the Computer Engineering curriculum prepares students to enter this challenging new field.

A liberal choice of technical electives accommodates a broad spectrum of educational objectives. Those wishing to prepare for an advanced degree may do so by selecting advanced theoretical courses in computer science or electrical engineering. Those wishing to obtain breadth in general engineering practice may do so by choosing electives in engineering science or other engineering disciplines.

Four-Year Program in Computer Engineering
The curriculum for the first year is common to all branches of engineering. In order to enable a student to test his or her interest in Computer Engineering, the student takes designated courses from the Computer Engineering course offerings in the sophomore year. Advances in communications technologies are a key reason for current growth of computer engineering. With its course offerings in telecommunications, the computer engineering curriculum puts emphasis on understanding communications systems including computer networks and wireless systems. A liberal choice of technical electives accommodates a broad spectrum of educational objectives. A representative four-year program is shown below.
# Computer Engineering

<table>
<thead>
<tr>
<th>FIRST YEAR</th>
<th>Credits</th>
<th>SECOND YEAR</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 101</td>
<td>4</td>
<td>MATH 201, 203</td>
<td>6</td>
</tr>
<tr>
<td>ENGL 110</td>
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<td>ENGS 115,116</td>
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<td>PHYS 102</td>
<td>4</td>
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<tr>
<td>MATH 103, 104</td>
<td>6</td>
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<td>3</td>
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<td>PHYS 101</td>
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<td>ENGL Elective</td>
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<tr>
<td>Total</td>
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</table>

<table>
<thead>
<tr>
<th>THIRD YEAR</th>
<th>Credits</th>
<th>FOURTH YEAR</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EECE 303, 304</td>
<td>6</td>
<td>CMPE 410, 411</td>
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<td>EECE 305, 306</td>
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<td>CMPE 470</td>
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<td>EECE 315</td>
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<td>CMPT 335, 360</td>
<td>6</td>
<td>CMPT 438, 353, 312</td>
<td>9</td>
</tr>
<tr>
<td>EECE 317, 318</td>
<td>2</td>
<td>Tech Electives</td>
<td>6</td>
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<tr>
<td>RELS Elective</td>
<td>3</td>
<td>HSS Electives</td>
<td>3</td>
</tr>
<tr>
<td>ENGS 205</td>
<td>3</td>
<td>RELS Elective</td>
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<td>HSS Elective</td>
<td>3</td>
<td>Total</td>
<td>34</td>
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<tr>
<td>Total</td>
<td>33</td>
<td></td>
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</tr>
</tbody>
</table>

Total credits for graduation: 131
Electrical Engineering
Wide in scope and variety, Electrical Engineering ranges from design of solid state devices and increasingly complex microcircuits to design of communication systems or large scale power generating equipment and plants to meet society’s accelerating demand for clean energy. The fundamental principles of information processing and control inherent in an electrical engineer’s background find applications in such diverse areas as industry and medicine.

The Electrical Engineering program emphasizes strength in electrical circuits and electromagnetic theory as a framework for courses in electronics, energy conversion, computers, automation and engineering systems. Laboratory courses provide design experience, stress principles, methods, accuracy of measurements and the limitations of electrical instruments and measuring devices. Senior research and design projects offer opportunities for creative work with personal guidance.

Four-Year Program in Electrical Engineering
The curriculum for the first year is common to all branches of engineering. In order to enable a student to test his or her interest in Electrical Engineering, the student takes designated courses from the Electrical Engineering course offerings in the sophomore year. The junior and senior years allow for concentrated studies in the areas of electrical circuits and electromagnetic theory as a framework for courses in electronics, power systems, computers, automation and engineering systems. Laboratory courses provide design experience, stress principles, methods, accuracy of measurements and the limitations of electrical instruments and measuring devices. Senior research and design projects offer opportunities for creative work with personal guidance by a faculty member. A representative four-year program is shown below.
# Electrical Engineering

<table>
<thead>
<tr>
<th>FIRST YEAR</th>
<th>Credits</th>
<th>SECOND YEAR</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 101</td>
<td>4</td>
<td>MATH 201, 203</td>
<td>6</td>
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<tr>
<td>ENGL 110</td>
<td>3</td>
<td>PHYS 102</td>
<td>4</td>
</tr>
<tr>
<td>ENGS 115, 116</td>
<td>6</td>
<td>ENGS 205</td>
<td>3</td>
</tr>
<tr>
<td>MATH 103, 104</td>
<td>6</td>
<td>ELEC 202, EECE 203, 229, 230</td>
<td>13</td>
</tr>
<tr>
<td>PHYS 101</td>
<td>4</td>
<td>RELS Elective</td>
<td>3</td>
</tr>
<tr>
<td>RELS 110</td>
<td>3</td>
<td>ENGL Elective</td>
<td>3</td>
</tr>
<tr>
<td>HSS Electives</td>
<td>6</td>
<td>Total Elective</td>
<td>32</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>32</strong></td>
<td><strong>Total</strong></td>
<td><strong>32</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>THIRD YEAR</th>
<th>Credits</th>
<th>FOURTH YEAR</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EECE 303, 304</td>
<td>6</td>
<td>ELEC 408</td>
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<td>EECE 305, 306</td>
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<td>ELEC 310, 316, EECE 315</td>
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<td>ELEC 433, 456</td>
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<tr>
<td>EECE 317, 318</td>
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<td>ELEC 417, 418¹</td>
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<td>ELEC 307</td>
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<td>ELEC Electives</td>
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<td>Free Elective</td>
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<tr>
<td>HSS Elective</td>
<td>3</td>
<td>HSS Electives</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>33</strong></td>
<td><strong>Total</strong></td>
<td><strong>34</strong></td>
</tr>
</tbody>
</table>

**Total credits for graduation:** 131

¹ Elec 419 and 420 may be substituted with the permission of the Department Chair.


Mechanical Engineering

Mission Statement
The mission of the Mechanical Engineering Program is to provide students with an education that will prepare them for future challenges in Mechanical Engineering, whether they plan to practice engineering or pursue advanced/graduate studies.

Mechanical Engineering
The mechanical engineer is considered the general practitioner in the engineering profession. Career opportunities exist in such fields as aerospace, automotive, computer, energy, machinery, manufacturing, and consulting firms. The curriculum is designed to provide the kind of broad education needed by “general practitioners.” Juniors and seniors take course sequences in two areas: thermal/fluids/energy, and solid mechanics/machine design/manufacturing. Both areas rely extensively on computer applications. Seniors may specialize by choosing electives in: computer-aided design, computer-aided manufacturing, thermal/energy systems, or heating, ventilation and air conditioning.

Course work is complemented by comprehensive laboratories containing a wind tunnel, steam turbine, automotive engines, refrigeration systems, computer-controlled machine tools, stress and vibration analyzers, and computer-based data acquisition systems. Students also have access to PC laboratories, computer terminals, and advanced workstations. In the senior year, qualified students are encouraged to use this equipment in elective project courses. The curriculum prepares the student for professional employment and graduate study.

Four-Year Program in Mechanical Engineering
The curriculum for the first year is common to all branches of engineering. In order to enable a student to test his or her interest in Mechanical Engineering, he or she takes designated courses from the Mechanical Engineering course offerings in their sophomore year. The junior and senior years allow for concentrated studies in two areas: thermal/fluids/energy, and solid mechanics/machine design/manufacturing. Both areas rely extensively on computer applications. Seniors may specialize by choosing electives in: computer-aided design, computer-aided manufacturing, thermal/energy systems, or heating, ventilation and air conditioning. A representative four-year program is shown below.
## Mechanical Engineering

### FIRST YEAR

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 101</td>
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<tr>
<td>ENGL 110</td>
<td>3</td>
</tr>
<tr>
<td>ENGS 115, 116</td>
<td>6</td>
</tr>
<tr>
<td>MATH 103, 104</td>
<td>6</td>
</tr>
<tr>
<td>PHYS 101</td>
<td>4</td>
</tr>
<tr>
<td>RELS 110</td>
<td>3</td>
</tr>
<tr>
<td>HSS Elective</td>
<td>6</td>
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<tr>
<td><strong>Total</strong></td>
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</table>

### SECOND YEAR

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 201, 203</td>
<td>6</td>
</tr>
<tr>
<td>PHYS 102 or CHEM 102</td>
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</tr>
<tr>
<td>ENGS 201/202, 205(^1)</td>
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<tr>
<td>MATH 206, 220</td>
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<tr>
<td>ENGL Elective</td>
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<td><strong>Total</strong></td>
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### THIRD YEAR

<table>
<thead>
<tr>
<th>Course</th>
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</tr>
</thead>
<tbody>
<tr>
<td>MECH 302</td>
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<tr>
<td>MECH 312</td>
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<tr>
<td>MECH 314</td>
<td>3</td>
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<tr>
<td>MECH 318</td>
<td>4</td>
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<tr>
<td>MECH 323</td>
<td>3</td>
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<td>MECH 325</td>
<td>3</td>
</tr>
<tr>
<td>MECH 332</td>
<td>3</td>
</tr>
<tr>
<td>MECH 336/337</td>
<td>3</td>
</tr>
<tr>
<td>RELS Elective</td>
<td>3</td>
</tr>
<tr>
<td>HSS Electives</td>
<td>3</td>
</tr>
<tr>
<td>MATH/SCI Elective</td>
<td>3/4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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</tbody>
</table>

### FOURTH YEAR

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MECH 401</td>
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</tr>
<tr>
<td>MECH 402</td>
<td>2</td>
</tr>
<tr>
<td>MECH 405</td>
<td>3</td>
</tr>
<tr>
<td>MECH 411</td>
<td>3</td>
</tr>
<tr>
<td>MECH 414</td>
<td>3</td>
</tr>
<tr>
<td>MECH 422</td>
<td>3</td>
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<tr>
<td>MECH Electives</td>
<td>9</td>
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<td>HSS Elective</td>
<td>3</td>
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<tr>
<td>RELS Elective</td>
<td>3</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>31</strong></td>
</tr>
</tbody>
</table>

Total credits for graduation: 132/133

\(^1\) Students must earn a grade of C (2.0) or higher in ENGS 205 and ENGS 206, as required for their program of study, before enrolling in any 300-level mechanical engineering courses.
Minor Studies

To provide the engineering student with the opportunity to develop some depth in an area other than the major, it is possible to minor in a number of programs.

Students may minor in Biology, Business Administration, Computer Science, Chemistry, English, Government, History, Mathematics, Modern Foreign Languages, Peace Studies, Philosophy, Physics, Psychology, Religious Studies, and Urban Affairs. In general a minor consists of 15 credits. Courses must be completed at Manhattan College.

Engineering students may also choose to minor in another engineering discipline. The following minor programs are offered:

**Chemical Engineering:**
CHML 207, 208, 305, 306, and one of CHML 308, 321, 439 or CHEM 319.

**Civil Engineering:**
CIVL 302, 303, 308, 309, 409.

**Computer Engineering:**
CMPT 101, 102, ELEC 229, 230, and one additional course approved by the Electrical and Computer Engineering Department Chair.

**Electrical Engineering:**
ELEC 203, 229, and three courses to be approved by the Electrical and Computer Engineering Department Chair.

**Environmental Engineering:**
ENGS 204, ENVL 202, 315 or 505, 506, and one of the following Environmental Engineering design classes: ENVL 307, 408, 410, 435.

**Mechanical Engineering:**
A different minor program is defined for each of the other programs.

- Chemical Engineering: ENGS 206, 220, and MECH 211, 230, 323.
- Civil Engineering: MECH 211, 302, 323, 325, 411.
- Environmental Engineering: ENGS 220, and MECH 211, 230, 302, 325

Note that students are responsible for any required prerequisites. Completion of the minor may qualify students for entry to the graduate program of the minor department. Students should contact the chair of the minor department for further information.

Engineering students may pick up an Application for Minor form in the Office of the Dean of Engineering. After the form is completed by the department Chair offering the minor, the form should be returned to the Office of the Dean of Engineering by the student. When all courses have been completed, the Dean will notify the Office of the Registrar.

Cooperative 3-2 Program

Engineering at Manhattan College has cooperative arrangements with several liberal arts Colleges which enables a student to earn a B.S. degree in liberal arts and a B.S. in engineering degree in one of the engineering programs after five years of study. The B.S. degree with a major in chemistry, physics, or mathematics is awarded by the liberal arts college and the B.S. in engineering degree by Manhattan College. The student spends the first three years of the five year sequence at the liberal arts college and the final two years in Engineering at Manhattan College.

Ten colleges are presently participating in this program:

- College of The Sacred Heart
- Dominican College
- Le Moyne College
- Pace University
- Saint Anselm College
- Saint Thomas Aquinas College
- Saint John Fisher College
- Siena College
- St. John’s University
- St. Joseph’s College (Maine)
Transferring from a Community College

Students who complete a pre-engineering program will generally be permitted to transfer up to 67 credits towards a Bachelor of Science in Engineering degree. In accordance with accreditation principles of the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology, transfer credit will only be permitted for courses in which a grade of C (2.0) or higher has been earned.

Students who graduate with an Associate Degree in a technology program will generally only be permitted to transfer 9 credits towards a Bachelor of Science in Engineering degree.

Engineering maintains articulation agreements with many of the community colleges in the Tri-State area. Additional information can be obtained from the Office of the Dean of Engineering at (718) 862-7281.

Graduate-Level Courses (5XX, 6XX, 7XX)

Students in all engineering disciplines, who have a grade point average of at least 3.00 or the permission of the department chair can elect to take graduate-level courses. These courses will count for either undergraduate or graduate credit but not for both degree programs. Undergraduate students who enroll for undergraduate credit will be graded according to the standard undergraduate grading system, and the grade will be counted in the undergraduate grade point average. Tuition for the undergraduates in the graduate-level courses will be charged at the undergraduate rates provided the student does not exceed the total number of credits permitted for the academic year.

Seamless Master's Degree Program

Outstanding students may be invited to participate in a Seamless Master's Degree program in Chemical, Civil, Computer, Electrical, Environmental, or Mechanical Engineering. Academically strong students who enter Manhattan College with Advanced Placement and/or undergraduate college credit will generally be in a position to take graduate courses during their senior year at Manhattan College while completing the requirements for the Bachelor's degree. It may then be possible to obtain a Master's degree with an additional year of study.

Undergraduate students who have earned a minimum of 3.20 GPA are eligible to apply for the Seamless Master's Degree program upon the recommendation of a member of the engineering faculty. Transfer students may be considered after completing courses at Manhattan College. Admitted students are required to complete the baccalaureate degree with a 3.00 GPA prior to continuing for the additional year of graduate study.

Students admitted into the Seamless Master's Degree program may enroll in 500, 600, or 700 level courses while completing the requirements for the Bachelor's degree. These courses will count for either undergraduate or graduate credit but not for both degree programs. Since some required graduate courses are offered on a two-year rotation, admitted students must meet with the chair of the major department prior to their senior year in order to select appropriate 500, 600, and 700-level courses to satisfy the Master's Degree requirements. There is no tuition increase for enrolling in graduate courses during the senior year provided the student does not exceed the total number of credits permitted for the academic year.

After completing the undergraduate degree requirements, financial support may be available from individual departments for the additional year of graduate study. This support typically includes research assistantships, academic scholarships and grants, and industrial fellowships.
Professional and Career Development

Professional Engineering Licensing
An important goal for each engineering student is to achieve the distinction of being a licensed professional engineer. Receipt of the baccalaureate degree from an institution accredited by the Accreditation Board of Engineering and Technology (ABET) is one important step. The requirements for licensure include a two part examination. Engineering students in good academic standing at Manhattan College may take the first part, the Fundamentals of Engineering (FE) examination, during their senior year. This FE examination is heavily based on mathematics, basic sciences, and the engineering sciences. The engineering curriculum at Manhattan College is excellent preparation for success on the examination.

Preparation for Law School
Students interested in entering law school may receive information and guidance through the Prelegal Advisory Committee. In addition to personal interviews, the Committee conducts group meetings to advise students on specialized fields of law. The committee makes information available on requirements for admission to law schools, the availability of scholarships, and special opportunities in the legal profession. Further information is available from the Office of the Chair of the Prelegal Advisory Committee.

Preparation for Medicine and Dentistry
The Health Professions Advisory Committee is a body of faculty members who give guidance to students interested in preparing for careers in medicine, dentistry and allied fields. The Committee attempts to help students become aware of the qualifications essential for admission to professional schools. The Committee advises students on the selection of programs of study that will furnish them with specialized pre-professional courses in the sciences and with a broad liberal education to prepare them for effective participation in the human community. Further information is available from the Office of the Chair of the Health Advisory Committee.

The minimum required courses for admission to professional schools are:

Biology 111-112, 113-114, Chemistry 101-102, 319-320, 323-324, English 110, Mathematics 103-104, and Physics 101-102 or 107-108. Specific schools may require or recommend other courses. Pre-professional students are expected to maintain an average of at least a 3.0 in their science courses.

Academic Standing
Students are considered to be in good academic standing in the College when their Manhattan College cumulative grade point average is at least 2.00. In addition, to be considered in good academic standing in the School of Engineering, their cumulative engineering grade point average must be at least 2.00, and their term grade point average must be at least 2.00. Grade point averages are computed at the end of each semester.

A letter of academic warning is typically issued to each student earning a grade of D or F in any given semester, but is still in good academic standing in Engineering. Letters of academic warning remain in effect for two consecutive semesters, while the student is still in good academic standing in Engineering, will result in a meeting with the Academic Advisor or the Dean. The letter of academic warning clearly spells out the danger to an academic program of receiving unacceptable grades.

A letter of academic probation is typically issued to each student failing to remain in good academic standing in Engineering. Also, a letter of academic probation is typically issued to students receiving multiple unsatisfactory grades (especially grades of F) even though the student may be in good academic standing. Freshman failing to remain in good academic standing after their first semester may be placed on academic probation. Students on probation are required to take a reduced course load of 12 credits for the following semester and may be restricted from participating in College activities. Students may remove themselves from academic probation by achieving a grade point average of 2.0 by the end of the following regular semester. Failing to achieve good academic standing while on probation can lead to an academic contract or, in extreme cases, dismissal.
A letter of academic contract is typically issued to students failing to achieve good academic standing in Engineering as a result of their being on academic probation. Also, a letter of academic contract is typically issued to a student if the most recent term grade point average falls below 1.0 even if they were not on probation the previous semester. A student may not be on academic contract for two consecutive semesters without authorization of the Dean.

Students are subject to suspension when they fail to satisfy the terms of the academic contract or fail to achieve good academic standing while on probation. In these situations, a judgment is made by the Dean that the student's studies should be interrupted for a designated time period, usually six months or one year, before reinstatement would be considered. Suspended students must present evidence of their ability to continue their studies successfully when applying for such reinstatement into the School of Engineering. Upon return, suspended students are subject to academic contract for their first semester back.

Dismissal is a permanent separation from Manhattan College (not just the School of Engineering). A letter of dismissal from the College may be issued to each student failing to satisfy the terms of the academic contract or failing to achieve good academic standing while on probation. A student may also be dismissed from the College when they receive failing grades in all courses attempted in any one semester.

Generally, a student not in good academic standing may not enroll in more than four courses or for more than 14 credits, whichever is less. Exceptions to this provision requires the written permission of an Engineering Academic Advisor or the Dean.

Students must earn a grade of C (2.0) or higher in MATH 103, 104, 201; CHEM 101 and 102; and PHYS 101, 102, as required for their program of study, before enrolling in any 300 level engineering courses. A grade of C (2.0) is required in MATH 203 prior to taking any 400 level engineering course.

A student is permitted no more than three grades below a C (2.0) in Engineering Courses. If a student earns less than a C (2.0) in more than three engineering courses, the student must repeat one or more of them, and earn grade of C (2.0). The course(s) to be repeated will be determined in consultation with, and with the approval of, an Engineering Academic Advisor.

The following courses are included in the above requirement: CHEM 309, 310, 319, 320, and 323; PHYS 201, 251; all CMPT and MATH courses required for any engineering program, and any math and science elective courses. Additional courses may be added and students are advised to connect with the chair of the department.

**Humanities and Social Science Requirements**

Studies in humanities and social sciences serve not only to meet the objectives of a broad education but also to meet the objectives of the engineering profession.

Students matriculating in September 1995 and thereafter must choose nine courses (27 credit hours) from programs offered by the School of Arts. ENGL 110 and RELS 110 are required of all students. The remaining seven classes shall include no more than two from any one department and may follow a common theme. These courses must include:

- One Literature course offered by the English Department.
- One Humanities course (Modern Foreign Languages, (200 Level or higher) Fine Arts, History, Philosophy, Religious Studies, and English).
- Two Social Studies courses (Government, Economics, Psychology, and Sociology).
- One additional course in either the Humanities or Social Sciences.
- Two Religion courses (one 300 Level and one 400 Level course)
Additional restrictions may be applied and final approval of all Humanities and Social Science courses are subject to approval by the Office of the Dean.

Students matriculated prior to September 1995 must select one literature course offered by the English Department. Two courses from one of the following humanities must be completed: Fine Arts, History, Modern Foreign Language (200 level or higher), Philosophy, Religious Studies, English. One course from one of the social sciences must be completed: Economics, Government, Psychology, Sociology. One additional course from one of the following departments must also be completed: Economics, English, Fine Arts, Government, History, Modern Foreign Languages (200 level or higher), Philosophy, Psychology, Religious Studies, and Sociology.

**Guidance Program**

The guidance and advisory program for students in Engineering follows the pattern established for the entire College. Freshmen are advised by the Academic Advisor in the Office of the Dean of Engineering. The chairs of engineering departments act as advisors to upper division students. These students may also receive guidance and advice through the Office of the Dean of Engineering. The phone number for the Office of the Dean of Engineering is (718) 862-7281.

Departmental faculty are also available to counsel junior and senior students with respect to career opportunities in their major, as well as the program of study.

**Student Societies**

Student chapters of several national engineering societies have been established at Manhattan College to assist the student in becoming familiar with the engineering profession: Institute of Electrical and Electronics Engineers, American Society of Civil Engineers, American Institute of Chemical Engineers, and American Society of Mechanical Engineers.

Other organizations of special interest to engineering students include: American Chemical Society, Newton Mathematical Society, National Society of Black Engineers, Society of Hispanic Professional Engineers, Society of Women Engineers, Association of Computing Machinery, American Institute of Aeronautics and Astronautics, American Society of Heating, Refrigeration, Air Conditioning Engineers, Electronics Club, The New York Water Environment Association, and the Society of Automotive Engineers. Chapters of Tau Beta Pi (Engineering), Omega Chi Epsilon (Chemical Engineering), Chi Epsilon (Civil Engineering), Eta Kappa Nu (Electrical Engineering), Tau Chi Alpha (Environmental Engineering) and Pi Tau Sigma (Mechanical Engineering) honor societies have been chartered at Manhattan College to recognize students who excel in scholarship and leadership. Membership in these national honor societies is open to juniors and seniors.

**CERTIFICATION FOR GRADUATION**

The Dean of the School of Engineering must certify that the student has satisfied all requirements for his or her program of study prior to graduation. The Dean may approve program modifications, if necessary, to meet program requirements.
SCIENCE

Since its establishment as a separate school of Manhattan College in 1993, the School of Science has maintained its traditional ties with the School of Arts while striving to assure the continuation of Manhattan’s tradition of excellence in Science education. This tradition is reflected in the success of Manhattan’s Science graduates and the position of Manhattan among a select number of colleges which are recognized as important sources of the nation’s professional scientists.

Curriculum

Undergraduate studies in the Sciences are most challenging but provide an almost unique opportunity to learn and develop problem-solving and analytical skills while gaining a deeper understanding and appreciation of physical laws and their applications. The choice of a Science major is based upon the individual’s interests, educational and career goals, and abilities. Majors may be chosen from several areas: biology, biochemistry, chemistry, computer science, mathematics, physics. Elective components of the major curricula provide the opportunity to explore other areas of interest, enhance knowledge in a specialized area of the major, or to construct minor sequences in other disciplines. Minors may be earned in all of the departments of the School of Science. At Manhattan, our Science curricula contain a strong core component in the Arts to provide a foundation for our graduates to contend with the humanistic and ethical issues they will face after graduation. Once a student is admitted to Manhattan College, all major, minor, and Core courses must be taken at Manhattan College. Certain non-resident courses, with the approval of the Dean and major department Chair, may be exceptions to this requirement. Under unusual circumstances, and with the approval of the Dean after consultation with the Chair of the student’s major department, courses may be taken at another College.

Honor Societies and Research Opportunities

A number of national honor societies have been established on campus in order to encourage and recognize the achievements of Manhattan College students. Phi Beta Kappa, founded in 1776, is dedicated to the idea of excellence in the liberal arts and sciences. The Manhattan College chapter, the Upsilon of New York was established in 1971. Election to Phi Beta Kappa is generally regarded as a mark of the highest distinction. Sigma Xi is a national honor society founded in 1896 to encourage research in the sciences. Students are elected to membership on the basis of their accomplishments in research and their enthusiasm for continued scientific investigation. Departments of the School of Science sponsor local chapters of national honor societies in their disciplines; Beta Beta Beta (Biology), Gamma Sigma Epsilon (Chemistry), Pi Mu Epsilon (Mathematics), Sigma Pi Sigma (Physics). The Science faculty are dedicated to encouraging student research efforts. Manhattan’s small classes and close student-faculty interactions generate an atmosphere which has produced many important student-faculty research collaborations.

Professional and Career Development

Prelegal Advisory Committee

Students interested in entering law school may receive information and guidance through the Prelegal Advisory Committee. In addition to personal interviews, the Committee conducts group meetings to advise students on specialized fields of law. The Committee makes information available on requirements for admission to law schools, the availability of scholarships, and special opportunities in the legal profession. Further information is available from Professor June Dwyer of the Department of English.
Health Professions Advisory Committee
The Health Professions Advisory Committee is a body of faculty members who give guidance to students interested in preparing for careers in medicine, dentistry, and allied fields. Students are advised of the requirements established by the Association of American Medical Colleges, the American Dental Association, and other professional associations in the health field. Further information is available from the Office of the Chair of the Health Advisory Committee, Ann Marie Della Pizzi.

Preparation for Medicine and Dentistry
Students preparing for professional school admission may major in any discipline in the College. Their preparation must include, at a minimum, the following courses.

BIOL 111-112
BIOL 113-114
CHEM 101-102
CHEM 319-320
CHEM 323-324
ENGL 110
MATH 103-104
PHYS 101-102 or 107-108

Specific professional schools may require additional courses. Pre-professional students are expected to maintain an average of at least B in their science courses.

Phi Delta Epsilon International Medical Fraternity
An undergraduate chapter of Phi Delta Epsilon, the International Medical Fraternity, has been established on campus and is open to all students desiring a professional career in the health sciences. Phi Delta Epsilon assists pre-professional students in making informed decisions when seeking health professions careers, conducts discussions with local health care professionals and current professional school students, holds regional and international conventions and helps develop community service programs. Phi Delta Epsilon is the largest and only medical fraternity of students and practicing physicians, active on over 40 medical school campuses. Interested students must be entering sophomore year and have a cumulative GPA of 3.0.

Cooperative Program with the New York Chiropractic College
Manhattan College and the New York Chiropractic College sponsor a Joint Degree Affiliation Agreement. While enrolled at Manhattan College, students will complete all prerequisite course work for entrance into the NYCC professional program, with a cumulative GPA of 3.25 and individual grades of C or higher in all science courses required for entrance into NYCC, and will complete Manhattan College’s general requirements. Students will complete all additional course work which can be used, in addition to the above, to place joint degree students in proper position to complete their Manhattan College degree requirements upon completion of the first year (three trimesters) of professional study at NYCC. The acceptance of credits via transfer or testing toward completion of degree requirements shall be governed by current policies of Manhattan College. However, no more than 20 credits of required courses, and none of the science credits required for admission to NYCC, may be earned via examination. This is a requirement of the Council on Chiropractic Education (CCE). New York Chiropractic College shall accept, for the entrance date of their choice, all students who successfully complete the Pre-Chiropractic Program with a cumulative GPA of 3.25 or higher and meet all other criteria for admission. Students who earn less than a 3.25 GPA, but at least a 2.25 GPA, will be eligible for admission to NYCC, and will receive appropriate consideration in the admission process for having completed the Manhattan College Pre-Chiropractic program, but will not receive the assurance of a seat reserved for students earning a 3.25 or higher GPA. Students will make application to NYCC one year in advance of their desired entrance date and will complete all required application procedures thereafter in a timely manner, including submission of recommendations and a satisfactory review. Students enrolled in the “3+1” program who successfully complete all
course work in the first three trimesters at New York Chiropractic College with C's or better will be granted the Bachelor of Science degree from Manhattan College, provided they have met all other graduation requirements.

**Cooperative Program with the New York University College of Dentistry**

Manhattan College and the New York University College of Dentistry sponsor a joint articulation program in dental education. Interested students must apply early in the fall semester of junior year. An index of at least 3.2 or higher for all science courses and an acceptable score on the DAT are required. The curriculum of the combined B.S./D.D.S. program requires completion of at least 98 credits at Manhattan College. Upon successful completion of the first year of study at Dentistry, the B.S. degree will be awarded by Manhattan College. The D.D.S. degree will be awarded upon completion of the seventh year of study by New York University College of Dentistry. Final admission to the program resides with the Office of Enrollment Services of the College of Dentistry.

**Cooperative Program with the New York College of Podiatric Medicine**

Manhattan College and the New York College of Podiatric Medicine (NYCOPM) sponsor a joint articulation program in podiatric education. Interested students must apply early in the fall semester of junior year and must take the MCAT in April of their junior year. An index of 3.2 at Manhattan College and an acceptable MCAT score are required. The curriculum of the combined B.S./D.P.M. program requires the completion of at least 98 credits at Manhattan College. Upon successful completion of the first two years of study at NYCOPM, the B.S. degree will be awarded by Manhattan College. The D.P.M. degree will be awarded upon completion of the seventh year of study at NYCOPM. Final admission to the program resides with the Admissions Office of the NYCOPM.

**Cooperative Program with the State University of New York (SUNY) State College of Optometry**

Manhattan College and the SUNY State College of Optometry sponsor both a Joint Degree Affiliation Agreement and an Early Assurance Program Agreement for students interested in pursuing the field of optometry.

Students interested in the Joint Degree Affiliation Program must apply early in the fall semester of their junior year and must take the Optometry Admissions Test (OAT) in the spring of junior year. An index of 3.2 at Manhattan College and an acceptable OAT score are required. The curriculum of the combined B.S./O.D. program requires the completion of at least 98 credits at Manhattan College with no science or math grade below a C. Upon successful completion of the first year at SUNY-State College of Optometry, the B.S. degree will be awarded by Manhattan College. The O.D. degree will be awarded upon completion of the seventh year of study at SUNY-State College of Optometry. Final admission to the program resides with the Office of Student Affairs at SUNY-State College of Optometry.

Students interested in the Early Assurance Program apply by the end of their sophomore year, with a minimum of 60 college credits, and must have completed at least 70% of the prerequisite science and math courses. Following submission of all appropriate application materials, interviews will be conducted by SUNY-State College of Optometry and candidates will be notified in writing of their status by August 31. If accepted, in the student's final two years at Manhattan College, a minimum of 3.2 overall GPA and a minimum of 3.2 in science and math must be maintained. In addition by February of senior year the OAT must be taken and a minimum science score of 320 must be attained.
## School of Science Curriculum

### Arts Core

<table>
<thead>
<tr>
<th>Core Requirements</th>
<th>Credits</th>
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<tr>
<td>The Classical Origins of Western Culture (LLRN 102*)</td>
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</tr>
<tr>
<td><em>A first year requirement</em></td>
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<tr>
<td>The Roots of the Modern Age*</td>
<td>3</td>
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<tr>
<td>History (LLRN 203)</td>
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<td>Literature (LLRN 204)</td>
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<tr>
<td>Philosophy (LLRN 205)</td>
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<tr>
<td>Fine Arts (LLRN 207 or 209)</td>
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<tr>
<td>The Roots of Social Sciences*+</td>
<td>6</td>
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<tr>
<td>RELS (three courses): 110, Elective A, B++</td>
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<td>College Writing (ENGL 110)</td>
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<tr>
<td><em>A one-semester course ordinarily completed during the first year</em></td>
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<tr>
<td>MFL</td>
<td>6</td>
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<tr>
<td><em>A full-year requirement</em></td>
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* Courses are open only to students in Arts and in Science

* Select two of the following courses: Economics (LLRN 120); Government (LLRN 121); Sociology (LLRN 122); Psychology (LLRN 123)

** Select one 300 level Religious Studies course and one 400 level Religious Studies course
Bachelor of Science in Biology

<table>
<thead>
<tr>
<th>FIRST YEAR</th>
<th>Credits</th>
<th>SECOND YEAR</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL 111-112</td>
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<td>BIOL 223, 217, 231</td>
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<td>BIOL 113-114</td>
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<td>CMPT 114</td>
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<td>CHEM 101-102</td>
<td>4-4</td>
<td>CHEM 319-320</td>
<td>3-3</td>
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<td>0-3</td>
<td>CHEM 323-324</td>
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<td>MATH 103-104</td>
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<td>MFL¹</td>
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<td>Religious Studies Elective A, B</td>
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<td>16-16</td>
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<td>15-16</td>
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</table>

**Total Credits for Graduation:** 128

¹ Language requirement: one year of foreign language at the level recommended by the Modern Foreign Languages Department based on the student's background.

Recognizing the various professional goals of our students, the department offers groups of courses in several areas of study which contribute toward reaching a specific career objective.

Students who wish to pursue Pre-Medical-Dental studies are urged to take 225, 301, 318, 319, 320, 321, 401, 405, and 426.

Students who wish to pursue Pre-Professional studies are urged to take 225, 302, 305, 319, 321, 401, 405, 416, and 426.

Students who wish to pursue Environmental Biology studies are urged to take 225, 301, 304, 305, 319, 326, 409, 431, and 432.

Students who wish to pursue Education studies are urged to take 207, 208, 225, 302, 304, 305, 318, 326 and 409. Students who wish to pursue General Studies in Biology are urged to take 225, 302, 304, 305, 320, 326, 409, 416 and a new course Evolution.

Students who wish to pursue Pre-Physical Therapy studies are urged to take 207, 208, 225, 306, 309, 375, 441, 443, and 445.

In order to pursue any specific area of study, it is essential that a student plan his/her proposed course sequence in close consultation with his/her faculty advisor and the Chair.

** Students select two of the following: LLRN 120, LLRN 121, LLRN 122, LLRN 123.
## Bachelor of Arts in Biology

<table>
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<th>FIRST YEAR</th>
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<td>CHEM 319-320</td>
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<td>BIOL 223, 217, 231</td>
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</table>

**Total Credits for Graduation:** 128

¹ Language requirement: one year of foreign language at the level recommended by the Modern Foreign Languages Department based on the student's background.

* With the 22 credits of free electives, students are urged to obtain formal minors or concentrate in any of various humanities, social science or business disciplines.

** Students select two of the following: LLRN 120, LLRN 121, LLRN 122, LLRN 123.
# Bachelor of Science in Chemistry

<table>
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<td>CHEM 323, 324</td>
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<td>CHEM 335</td>
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<td>LLRN 207 or 209</td>
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<tr>
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<th>CREDITS</th>
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<td>CHEM 437</td>
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</table>

**Total Credits for Graduation:** 128

1. *Student selects two of the following: LLRN 120, 121, 122 or 123.*

2. *For American Chemical Society Certification, 6 credits of electives must include CHEM 433.*
**Bachelor of Arts in Chemistry**

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<tr>
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<td>HSS</td>
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<th>FOURTH YEAR</th>
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</table>

Total Credits for Graduation: 126

¹ Student selects two of the following: LLRN 120, 121, 122 or 123.

² Of the 24 free electives allowed in the BA Chemistry program, at least six must be earned in the humanities or social sciences and six in the natural sciences or mathematics.

³ Can be CHEM 437 or other computer course to be determined in consultation with advisor.
# Bachelor of Science in Biochemistry

<table>
<thead>
<tr>
<th>FIRST YEAR</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CHEM 101-102</td>
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<td>BIOL 113-114</td>
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<td>CHEM 335</td>
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<td>PHYS 101-102 or 107-108</td>
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</table>

Total Credits for Graduation: **128**

\(^1\) Student selects two of the following: LLRN 120, 121, 122 or 123.

\(^2\) The advanced biology elective to be chosen from the following courses: BIOL 217, 225, 319, 320, 321 or 405 after individual consultation with and approval by the Chemistry Department Chair.
# Bachelor of Arts in Biochemistry

<table>
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<tr>
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<th>Credits</th>
<th>SECOND YEAR</th>
<th>Credits</th>
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<tr>
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<td>LLRN 203</td>
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<td>LLRN 204, 205</td>
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<tr>
<td>RELS 110</td>
<td>0-3</td>
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<td>17-17</td>
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<th>Credits</th>
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<th>Credits</th>
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<td>CHEM 302</td>
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<td>CHEM 436</td>
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<td>CHEM 309</td>
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<td>CHEM 458</td>
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<td>16-15</td>
<td>LLRN Social Sciences(^1)</td>
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**Total Credits for Graduation:** 127

\(^1\) Student selects two of the following: LLRN 120, 121, 122 or 123.

\(^2\) Of the 21 free electives allowed in the BA Chemistry program, at least six must be earned in the humanities or social sciences and six in the natural sciences or mathematics.

\(^3\) Can be CHEM 437 or other computer course to be determined in consultation with advisor.

\(^4\) The advanced biology elective to be chosen from the following courses: BIOL 217, 225, 319, 320, 321 or 405 after individual consultation with and approval by the Chemistry Department Chair.

For American Chemical Society Certification, 6 credits of electives must include CHEM 433.
# Bachelor of Science in Computer Science

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<tr>
<th>FIRST YEAR</th>
<th>Credits</th>
<th>SECOND YEAR</th>
<th>Credits</th>
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<tbody>
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<td>CMPT 101, 102</td>
<td>3-3</td>
<td>CMPT 335, 360</td>
<td>3-4</td>
</tr>
<tr>
<td>MATH 103-104 or 109-110</td>
<td>3-3</td>
<td>CMPT 241, 258</td>
<td>3-3</td>
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<td>MFL</td>
<td>3-3</td>
<td>PHYS 101, 102</td>
<td>4-4</td>
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<td><strong>LLRN Social Sciences</strong></td>
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<td><strong>LLRN Social Sciences, LLRN 203</strong></td>
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<td>ENGL 110</td>
<td>0-3</td>
<td>LLRN 204, 205</td>
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<tr>
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<td>CMPT 438, CMPT 456</td>
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<td>Non-Major Elective</td>
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<td>6-6</td>
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<td>LLRN 207 or 209</td>
<td>0-3</td>
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<tr>
<td>RELS Elective A</td>
<td>3-0</td>
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<tr>
<td>Free Elective</td>
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**Students select two of the following: LLRN 120, LLRN 121, LLRN 122, LLRN 123.**
Bachelor of Arts in Computer Science

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<th>Credits</th>
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<th>Credits</th>
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<td>CMPT 101, 102</td>
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<td>MATH 103-104 or 109-110</td>
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<td>CMPT 241, 258</td>
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<td>MFL</td>
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<td>*SCI 230, 231, 232</td>
<td>6-3</td>
</tr>
<tr>
<td>ENGL 110</td>
<td>0-3</td>
<td>**LLRN Social Sciences</td>
<td>0-3</td>
</tr>
<tr>
<td>LLRN 102, 203</td>
<td>3-3</td>
<td>LLRN 204, 205</td>
<td>**3-3</td>
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<tr>
<td>RELS 110</td>
<td><strong>3-0</strong></td>
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<tr>
<td>EECE 229, 230</td>
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<td>CMPT 456, CMPT Electives</td>
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<tr>
<td>CMPT 353, 312</td>
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<td>RELS Elective B</td>
<td>0-3</td>
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<tr>
<td>MATH 420</td>
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<td>Free Electives</td>
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<td>CMPT 334</td>
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<tr>
<td>LLRN 207 or 209</td>
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<tr>
<td>RELS Elective A</td>
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<tr>
<td>**LLRN Social Sciences, Free Elective</td>
<td><strong>3-3</strong></td>
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<td>15-15</td>
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</table>

Total Credits for Graduation: 121

* Students may opt instead to take one (1) full year of a lab science (8 credits) in this case total credits for graduation: 123.

** Students select two of the following: LLRN 120, LLRN 121, LLRN 122, LLRN 123.
### Bachelor of Science in Mathematics

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<th>Credits</th>
<th>SECOND YEAR</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MATH 103-104 or 109-110</td>
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<td>MATH 201 or 209, 203</td>
<td>3-3</td>
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<tr>
<td>CMPT 101, 102</td>
<td>3-3</td>
<td>MATH 213, 215</td>
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<td>* LLRN</td>
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</tr>
<tr>
<td>LLRN 102</td>
<td>3-0</td>
<td>LLRN 204 and 205</td>
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<td>0-3</td>
<td>PHYS 101, 102</td>
<td>4.4</td>
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<td>RELS 110</td>
<td>3-0</td>
<td></td>
<td>16-16</td>
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<th>Credits</th>
<th>FOURTH YEAR</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MATH 315, 316</td>
<td>3-3</td>
<td>MATH 420</td>
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<tr>
<td>MATH 325, 407</td>
<td>3-3</td>
<td>MATH 313, 460</td>
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<td>RELS Elective A</td>
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<td>Major Elective</td>
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<td>Natural Sciences¹</td>
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<td>RELS Elective B</td>
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<td></td>
<td>16-16</td>
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</table>

**Total Credits for Graduation:** 124

¹ One year (8 credits with lab) of the same natural science is required.

** Students select two of the following: LLRN 120, LLRN 121, LLRN 122, LLRN 123.
### Bachelor of Arts in Mathematics

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<th>Credits</th>
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<td>MATH 103-104 or 109-110</td>
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<td>MATH 201 or 209, 203</td>
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<td>CMPT 101, 102</td>
<td>3-3</td>
<td>MATH 213, 215</td>
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<td>ENGL 110</td>
<td>0-3</td>
<td>*SCI 230, 231, 232</td>
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<td>MFL</td>
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<td>**LLRN Social Sciences</td>
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<tr>
<td>LLRN 102, 103</td>
<td>3-3</td>
<td>LLRN 203, 204</td>
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<td>RELS 110</td>
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<td>15-15</td>
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<th>Credits</th>
<th>FOURTH YEAR</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MATH 315, 316</td>
<td>3-3</td>
<td>MATH 420</td>
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<tr>
<td>MATH 325, 407</td>
<td>3-3</td>
<td>MATH 313, 460</td>
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<td>0-3</td>
<td>Major Elective</td>
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</table>

**Total Credits for Graduation:** 123

* Students may opt for one (1) full year of a lab science (8 credits) in this case total credits for graduation 122.

** Students select two of the following: LLRN 120, LLRN 121, LLRN 122, LLRN 123.
## Bachelor of Arts in Physics

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<th>Credits</th>
<th>SECOND YEAR</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CHEM 101-102 or 197-198</td>
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<td>MATH 201 or 209</td>
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<tr>
<td>ENGL 110</td>
<td>0-0</td>
<td>MATH 203</td>
<td>0-3</td>
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<td>MFL1</td>
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<td>PHYS 223, 224</td>
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<td>LLRN 102</td>
<td>3-0</td>
<td>PHYS 250, 253</td>
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<td>MATH 103-104 or 109-110</td>
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<td>PHLS 214</td>
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<td>PHYS 101-102</td>
<td>4-4</td>
<td>CMPT 101</td>
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<td>17-17</td>
<td>RELS 110</td>
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<td>**LLRN Social Sciences</td>
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<td>LLRN 203</td>
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<td>PHYS 309</td>
<td>3-0</td>
<td>RELS Elective B</td>
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<td>PHYS 311</td>
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**Students select two of the following: LLRN 120, LLRN 121, LLRN 122, LLRN 123.**
## Bachelor of Science in Physics

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<th>Credits</th>
<th>SECOND YEAR</th>
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<td>0-3</td>
<td>MATH 203</td>
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<td>PHYS 223, 224</td>
<td>3-3</td>
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<td>LLRN 102</td>
<td>3-0</td>
<td>PHYS 250-253</td>
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<td>17-17</td>
<td>CMPT 101</td>
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<td>PHYS 101-102</td>
<td>4-4</td>
<td>RELS 110</td>
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<tr>
<td>HSS Elective</td>
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<td>RELS Elective B</td>
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<td>Electives</td>
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<td>Total Credits for Graduation:</td>
<td>14-15</td>
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</table>

1. This curriculum is for the B.S. degree in Track 1. For the B.S. degree in Track II, PHYS 312, 410, 453, 454, and 443 are not required. The replacement courses are to be in science, mathematics, computer science, or engineering. This Track offers flexibility to students intending to minor in an additional scientific or engineering discipline.

* Students select two of the following: LLRN 120, LLRN 121, LLRN 122, LLRN 123.
DESCRIPTION OF COURSES

Accounting (ACCT)
Aerospace Studies (ROTC)
Allied Health (AHS)
Biochemistry (BCHM)
Biology (BIOL)
Business (BUSN)
Chemical Engineering (CHML)
Chemistry (CHEM)
Civil and Environmental Engineering (CIVL/ENVL)
Communications (COMM)
Computer Information Systems (CIS)
Computer Science (CMPT)
Cooperative Education (CO-OP)
Economics (ECON)
English (ENGL)
Environmental Engineering (ENVL)
Finance (FIN)
Fine Arts (ART)
French (FREN)
German (GERM)
Global Business Studies (GLBL)
Government (GOVT)
History (HIST)
International Studies (INTL)
Italian (ITAL)
Law (LAW)
Liberal Learning (LLRN)
Management (MGMT)
Marketing (MKTG)
Mathematics (MATH)
Mechanical Engineering (MECH)
Modern Foreign Languages (MFL)
New York City Semester Internship (NYCI)
Peace Studies (PEAC)
Philosophy (PHIL)
Physical Education (PHED)
Physics (PHYS)
Psychology (PSYC)
Radiological & Health Sciences (RHS)
Religious Studies (RELS)
Science (SCI)
Sociology (SOC)
Spanish (SPAN)

Speech (SPCH)
Urban Affairs (URBN)

While Manhattan College will make every effort to offer courses in the semester and year listed, it reserves the right to do so depending upon a sufficient enrollment in each course.

ACCOUNTING, LAW, AND COMPUTER INFORMATION SYSTEMS (ACCT/LAW/CIS)

Dr. Mary Michel
Chair of the Department

ACCOUNTING (ACCT)

Accounting majors must take LAW 304, ACCT 301, 302, 303, 401, 404, 405, 409, 425 plus three credits among the following: ACCT 320, 410, 435, 460 and 470. A minimum grade of C is necessary to receive major or minor credit.

201-202. Principles of Accounting I & II.
Introduces fundamental accounting principles in accounting and demonstrates how these principles are used in preparing and interpreting financial statements of business organizations. Emphasis is given to the effect of transactions and events on the financial position, profitability and cash flows of business enterprises. Concepts and methods underlying management decisions are analyzed. Ethical issues in accounting are discussed.

301-302. Intermediate Accounting I & II.
Two-semester courses cover financial reporting for business enterprises under GAAP. A review of the practical foundation of financial concepts and reporting, and their practical application to accounting procedures. The topics covered include income and expense measurements, asset and liability measurements, and accounting for owners’ equity. Moreover, coverage of special topics such as accounting for revenue recognition, income taxes, pension, and leases. Computer-based problems involving spreadsheets and accounting software are integrated throughout the two courses. Supplementary
assignments on ethics sensitize students to ethical situations and dilemmas encountered by practicing accountants. **Prerequisites:** ACCT 201-202. (Cr. 4, 4)

303. Cost Accounting. This course concentrates on providing key cost data to managers. The idea of providing different costs for different purposes is stressed. The topics covered include measurement and reporting of manufacturing costs, job costing, process costing, activity-based costing, standard costing variance analysis, variable costing, cost allocation, joint products, quality costs, operations costing, just in time systems, and backflush costing. Fall. **Prerequisites:** ACCT 201-202. (Cr. 4)

320. Financial Statement Analysis. This course covers financial statement analysis for security valuation. First, it reviews the investment environment in which financial statement analysis takes place. Second, it compares valuation models based on forecasts of dividends, cash flow and accounting earnings. The course provides an in-depth analysis of each of the four financial statements. It analyzes financial ratios with special emphasis on the Price-to-Book and Price-Earnings ratios. It provides guidelines for forecasting future financial statements for valuation. The course is recommended for students with an interest in investing, including finance majors and accounting minors. **Prerequisite:** ACCT 201, ACCT 202, FIN 301 or 306.

401. Auditing. Auditor’s responsibilities in examining and preparing various reports on financial statements and his/her function in evaluating management controls. Topics include professional ethics, legal liability, auditing standards, internal control, and the selection, scope, and application of auditing procedures. Fall. **Prerequisite:** ACCT 301-302. (Cr. 3)

404. Information Technology Assurance and Audit. Evaluation of an EDP system; concepts of system and design; techniques of analyzing and flow charting various systems; use of computer audit package programs; and study of organizational, security, input, output, processing, and documentation controls. Spring. **Prerequisites:** ACCT 301, 302, 401. (Cr. 3)

405. International and Advanced Issues in Accounting. Discussion of global accounting issues such as international differences and harmonization; accounting for foreign currency transactions; consolidated financial statements; as well as other advanced issues such as governmental, nonprofit accounting, and accounting for bankruptcy. Spring. **Prerequisites:** ACCT 301-302. (Cr. 3)

409. Income Taxation. Theory and problems of federal income taxes as applied to individuals. Fall. **Prerequisite:** ACCT 301-302. (Cr. 3)

410. Federal Taxation II. Theory and problems of federal income tax system as it applies to entities other than individuals. Topics include tax research, corporate taxation, partnership taxation and the taxation of estates and trusts. Spring. **Prerequisite:** ACCT 409. (Cr. 3)

425. Ethical Issues in Accounting. The ethical implications of accounting are reviewed. This includes the ethical standards of various professional organizations. Finally, ethical decision-making and the related behavioral, structural and enforcement issues are addressed. **Prerequisite:** PHIL 201. (Cr. 3)

435. Accounting Field Study Internship. Students will work in an accounting position for 120 to 150 hours. A journal will be maintained and a project, supervised by a faculty advisor, will be completed with a final report. Students will participate in career development seminars covering such topics as resume writing, interviewing, networking and workplace etiquette. (Cr. 3)

460. Accounting Seminar. This course exposes students to theories and issues of current professional interest in accounting. Open to a limited number of students who meet departmental requirements and have the approval of the Chair of the Department. **Prerequisite:** ACCT 201-202. (Cr. 3)

470. Accounting Tutorial/Independent Study. A program of supervised reading and research under the direction of a member of the Department. Topics and methods of research are to be developed in consultation with the supervising professor. Open to qualified students who meet the departmental requirements and have the approval of the Department Chair and the Dean. (Cr. 3)
LAW (LAW)

203. Business Law I. Studies the impact of law on the business environment. Topics include the nature and sources of law, ethics, tort systems, crimes, torts, intellectual property, contracts, agency and the forms of business organizations. **Prerequisite:** at least sophomore standing. (Cr. 3)

204. Business Law II. This is the second half of a two semester course exploring the legal environment of business. Topics include personal property and bailments, real property, landlord and tenant, wills, trusts and estates, corporations, securities regulation, consumer protection, employment law, sales and negotiable instruments. Spring. **Prerequisite:** LAW 203. (Cr. 3)

ALLIED HEALTH (AHS)

See page 256.

COMPUTER ENGINEERING

See page 188.

COMPUTER INFORMATION SYSTEMS (CIS)

The Computer Information Systems program offers a core course, 210, required of all business students and a major in computer information systems. The major emphasizes information systems and the use of computers in aiding business professionals to perform their function in modern organizations. Computer Information Systems majors must take CIS 301, 305, 310, 326, 431. A minimum grade of C is necessary for credit in major and minor courses.

210. Introduction to Information Systems. Critical technologies used to manage information in today’s rapidly changing business environment are introduced. Analysis of computer hardware, software, networks, spreadsheets, search engines, database management systems, e-commerce and related ethical issues. (Cr. 3)

301. Introduction to Programming for Business Applications. Programming fundamentals with introduction to Visual Basic programming, problem solving, and application development. Emphasis on implementing programs to solve simple business problems. Fall. **Prerequisite:** CIS 210. (Cr. 3)

305. Computer Hardware and Software. Introduction to computer architecture and system software. Major topics include basic computer architecture, parallel computing, operating systems design and functionality, and software development. **Prerequisite:** CIS 210. (Cr. 3)

310. Database Concepts and Programming. Introduction to database management systems. Major topics include principles of relational database structure, design, management and SQL programming. **Prerequisite:** CIS 210. (Cr. 3)

316. E-Commerce Technologies. Introduction to implementing and managing an e-Commerce infrastructure. Major topics include web content creation using markup and scripting languages such as HTML, XML and JavaScript; audio, graphics, and video content technologies, web server setup and administration, web security and caching. **Prerequisite:** CIS 210. (Cr. 3)

326. Networks, Telecommunications and Global Communications. An introduction to computer networking and telecommunications. Major topics include networking and telecommunications fundamentals, LANs, wireless communication, the Internet, standards, and protocols. **Prerequisite:** CIS 305. (Cr. 3)

424. Decision Support Systems and Expert Systems. A study of the fundamental techniques used to construct Decision Support Systems and Expert Systems. Major topics include knowledge representation and management, the semantic web and the role of database management systems in decision support systems. **Prerequisite:** CIS 310. (Cr. 3)

426. Network Management. An introduction to a broad spectrum of network, system and applications management. Students will gain theoretical and practical knowledge of network and system architectures such as TMN, proto-
cols such as SNMP, information modeling, and NM applications such as Configuration, Fault, and Performance management. **Prerequisite:** CIS 326. (Cr. 3)

431. **Analysis and Design of Information Systems.** A study of the development of information systems from initiation to design, including requirement analysis and reviews. A phased approach and structured analysis methodologies are emphasized. **Prerequisite:** CIS 310. (Cr. 3)

460. **Computer Information Systems Seminars.** This course exposes students to evolving techniques and theories on issues of current professional interest in information system development and practice. Topics may include network design and management, software engineering, computer and network security, ethical, global, and legal issues of information systems. **Prerequisite:** varies according to topic. (Cr. 3)

470. **Computer Information Systems Tutorial/ Independent Study.** A program of supervised reading and research under the direction of a member of the Department. Topics and methods of research are to be developed in consultation with the supervising professor. Open to qualified students who meet the departmental requirements and have the approval of the Department Chair and the Dean. **Prerequisite:** CIS 310. (Cr. 3)

**AEROSPACE STUDIES (ROTC)**

Lt. Col. Mark R. Adair, USAF  
*Chair of the Department*

The **General Military Course** (AS 101, 102, 201, 202) provides an examination of the broad range of U.S. military forces in the contemporary world, with particular attention to the United States Air Force and its organization and mission. A student may take any of these courses without entering the AFROTC program.

The **Professional Officer Course** (AS 301, 302, 401, 402) provides an examination of the broad range of U.S. civil-military relations, the environmental context in which U.S. defense policy is formulated and implemented, and the principles and practices of leadership and management as they relate to the U.S. Air Force. A student may take any of these courses without entering the AFROTC program.

The **Leadership Laboratory** (100L, 200L, 300L, 400L) is a cadet-centered activity held in conjunction with all courses listed above and required for all Air Force ROTC cadets. It provides leadership and followership training experiences which will improve a cadet’s ability to perform as an Air Force Officer.

**GENERAL MILITARY COURSE (GMC)**

101. **Foundations of the Air Force I.** An introduction to the U.S. Air Force. A study of today’s issues as they relate to Air Force Officerhip and the benefits of an Air Force career. Course covers the history and structure of the US Air Force, the Air Force’s capabilities, career opportunities, benefits, and Air Force installations. A graded writing assignment on a current aerospace or air defense issue is required. Fall. (Cr. 1)

102. **Foundations of the Air Force II.** This is a continuation of study associated with the fall course. This course is designed to be a survey course. It is to educate students about the Air Force, what the Air Force can offer, and what traits the Air Force Reserve Officer Training (AFROTC) will begin cultivating in them so they may be effective leaders inside and outside the Air Force. Spring. (Cr. 1)

201. **The Evolution of USAF Air and Space Power I.** This course is designed to examine general aspects of air and space power through a historical perspective. Utilizing this perspective, the course covers a time period from the first balloons and dirigibles to the space-age global positioning systems of the present. Historical examples are provided to extrapolate the development of Air Force capabilities and missions to demonstrate the evolution of what has become today’s USAF air and space power. Furthermore, the course examines several fundamental truths associated with war in the third dimension: Principles of War and Tenets of Air and Space...
Power. As a whole, this course provides the student with a knowledge-level understanding for the general element and employment of air and space power from an institutional, doctoral, and historical perspective. In addition, the students will be inculcated into the Air Force Core Values, with the use of operational examples, and will complete several writing and briefing assignments to meet Air Force communication skills requirements. Fall. (Cr. 1)

202. The Evolution of USAF Air and Space Power. This course is designed to examine general aspects of air and space power through a historical perspective. Utilizing this perspective, the course covers a time period from the first balloons and dirigibles to the space-age global positioning systems of the present. Historical examples are provided to extrapolate the development of Air Force capabilities and missions to demonstrate the evolution of what has become today’s USAF air and space power. Furthermore, the course examines several fundamental truths associated with war in the third dimension: Principles of War and Tenets of Air and Space Power. As a whole, this course provides the student with a knowledge-level understanding for the general element and employment of air and space power from an institutional, doctoral, and historical perspective. In addition, the students will be inculcated into the Air Force Core Values, with the use of operational examples, and will complete several writing and briefing assignments to meet Air Force communication skills requirements. Spring. (Cr. 1)

PROFESSIONAL OFFICE COURSE (POC)

301. Leadership & Management I. AS 301 is a study of leadership, management, professional knowledge, Air Force personnel and evaluation systems, leadership ethics, and the communication skills required of an Air Force junior officer. Case studies are used to examine Air Force leadership and management situations as a means of demonstrating and exercising practical applications of the concepts being studied. A Leadership Laboratory complements this course by providing advanced leadership experiences in the corps, giving students the opportunity to apply the leadership and management principles of this course. Prerequisite: Department Chair Approval. Fall. (Cr. 3)

302. Leadership and Management II. This curriculum focuses on the profession of arms, military and joint ethics, problem solving, team building, and AF written/oral communication. Additionally, it will focus on leadership, management, professional knowledge, the Air Force personnel system, and the leadership ethics skills required of an Air Force junior officer. We will use case studies to enhance the learning process. A Leadership Laboratory complements this course by providing advanced leadership experiences in officer-type activities, giving students the opportunity to apply the leadership and management principles of this course. Prerequisite: Department Chair Approval. Spring. (Cr. 3)

401. National Security Affairs and Preparation for Active Duty I. This course is designed to allow cadets to comprehend the basic elements of national security policy and process. The individual should comprehend the air and space power functions and competencies. Also the individual should understand selected roles of the military in society and current issues affecting the military profession as well as selected provisions of the military justice system. The individual should comprehend the responsibility, authority and functions of an Air Force commander. The individual should apply listening, speaking, and writing skills in Air Force-peculiar formats and situations with accuracy, clarity, and appropriate style. The individual should comprehend the factors which facilitate a smooth transition from civilian to military life. Prerequisite: Department Chair Approval. Fall. (Cr. 3)

402. National Security Affairs and Preparation for Active Duty II. This course is designed to allow cadets to comprehend the basic elements of national security policy and process. The individual should comprehend the air and space power functions and competencies. Also the individual should understand selected roles of the military in society and current issues affecting the military profession as
well as selected provisions of the military justice system. The individual should comprehend the responsibility, authority and functions of an Air Force commander. The individual should apply listening, speaking, and writing skills in Air Force-peculiar formats and situations with accuracy, clarity, and appropriate style. The individual should comprehend the factors which facilitate a smooth transition from civilian to military life. Prerequisite: Department Chair Approval. Spring. (Cr. 3)

100L, 200L, 300L, 400L. Leadership Laboratory (LLAB). Aerospace Studies Leadership Laboratory (LLab) is a two-hour per week corequisite with AS 100, 200, 300 and 400 courses and is required of all AFROTC cadets. Leadership Lab is the application of personal leadership skills, demonstration of command, effective communication, individual leadership instruction, physical fitness training and knowledge of US Air Force customs and courtesies. In addition, as part of LLAB and throughout their four years of AFROTC training, cadets have the opportunity to visit Air Force installations, fly in various aircraft, and participate in special summer internship programs such as light aircraft training, Army Airborne training, and base orientation programs in different military specialties at Air Force bases worldwide. Prerequisite: Must be ROTC Cadet. (Cr.0)

BIOCHEMISTRY (BCHM) CHEMISTRY (CHEM)

Dr. John Wasacz
Chair of the Department

The goals of the chemistry and biochemistry department are to provide a program which emphasizes the basic understanding of the constituents of matter, its transformations and the chemical principles involved therein. The department also promotes the study of the chemical and biochemical environment and the manner and methods by which they are investigated. To accomplish this goal, students are provided with a basic framework of knowledge by which they can carry out further study, research and understand the implication of scientific discoveries, inventions and their impact upon human welfare. They learn to think analytically and independently and are encouraged to apply this knowledge ethically throughout their lifetimes to civic, personal and professional problems. As a result, students are prepared for careers in the various disciplines and subdisciplines of chemistry and biochemistry, in the teaching of these disciplines and for pursuing higher studies in basic and applied sciences or to follow professional careers in medicine, dentistry, law and other areas.

Requirements for the B.S. Major in Chemistry: Students in this program must maintain a 2.8 GPA in the major by the end of the fourth semester. Students who do not maintain this GPA are advised not to continue in the chemistry major. The following chemistry courses are required: 101, 102, 302, 309, 310, 311, 319, 320, 323, 324, 335, 336, 410, 437 and 452. A minimum grade of C in any chemistry course is necessary for credit toward the major. Majors may not elect CHEM 100, 105, or 106. The chemistry department is approved by the American Chemical Society and will certify students as having complied with the Society requirements provided they have completed the minimum requirements for the B.S. plus CHEM 433 and one additional 400 level course.

Requirements for the B.S. Major in Biochemistry: Students in this program must maintain a 2.8 GPA in the major by the end of the fourth semester. Students who do not maintain this GPA are advised not to continue in the biochemistry major. The following chemistry courses are required: 101, 102, 302, 309, 310, 311, 319, 320, 323, 324, 335, 410, 433, 434, 436, 437 and 458. BIOL 111-112, 113-114 and an advanced biology elective are also required. A minimum grade of C in any chemistry or biology course is necessary for credit toward the major. Majors may not elect CHEM 100, 105, or 106. Students planning to enter either medical or dental school should consult with the Premedical Advisory Committee and should acquaint themselves with the entrance requirements of medical or dental schools. Students pursuing the B.S. degree in biochemistry may, through the judicious choice of electives comply with the American Chemical Society requirements for certification.
Requirements for the B.A. Major in Chemistry: Students in this program must successfully complete the following courses with a minimum grade of C: CHEM 101-102, 319-320 and 323-324. They will then be permitted to enroll in the following required courses: CHEM 302, 309, 310, 311 and a chemistry elective.

Requirements for the B.A. Major in Biochemistry: Students in this program must successfully complete the following courses with a minimum grade of C: CHEM 101-102, 319-320, 323-324 and BIOL 111-112, 113-114. They will then be permitted to enroll in the following required courses: CHEM 302, 309, 433, 434, 436, and 458.

Undergraduate research is encouraged and the department is equipped with state-of-the-art instrumentation that is available for student use. Included are a Fourier-transform infrared spectrophotometer, an X-ray crystallography apparatus, a diode-array UV/visible spectrophotometer, a Fourier-transform nuclear magnetic resonance spectrophotometer, an atomic absorption unit, several high performance liquid chromatographs, gas chromatographs, and a molecular modeling laboratory.

Students who transfer into the chemistry and biochemistry programs are required to take at least half of their required chemistry credits at Manhattan College.

Requirements for the Minor in Chemistry: Students should complete 15 credits or five courses in the department of chemistry and biochemistry for the minor. This would generally include CHEM 101-102, CHEM 319-320 and one additional course.

Requirements for the Minor in Biochemistry: Students should complete 15 credits or five course in the department of chemistry and biochemistry for the minor. These credits must include at least 8 credits from the following courses: CHEM 433, 434, 436 and 458. A student may not count the same credits towards minors in both chemistry and biochemistry.

Breakage Deposit: Students registering for any laboratory course must present a $20 breakage card (obtained from the Bursar’s Office) at the second laboratory meeting.

100. Foundations of Chemistry. A brief course in fundamental principles and applications of chemistry to the living world. Two lectures and one two-hour laboratory period. This course is designed for students majoring in the Arts, in Physical Education, or in Radiological Sciences and cannot be used as a substitute for any other course in chemistry. (Cr. 3)

101-102. General Chemistry. The fundamental laws and principles of chemistry; appropriate laboratory exercises to illustrate these principles and to develop proper techniques; introduction to quantitative analytical methodology. The laboratory in the second semester includes an introduction to systematic inorganic qualitative analysis. Three lectures and one three-hour laboratory period per week. Prerequisite for CHEM 101: a high school chemistry course or CHEM 100. It is recommended that a student achieve a grade of C or higher in CHEM 101 before taking CHEM 102. (Cr. 4, 4)

105-106. Chemistry. An introductory course in the principles of chemistry, with application to the health sciences. Fundamentals of general chemistry, organic chemistry and biochemistry. Appropriate laboratory exercises illustrate these principles and develop techniques. This course cannot be taken as a prerequisite for Organic Chemistry. Three lectures and one three-hour laboratory period per week. (Cr. 4, 4)

197-198. General Chemistry: Honors. An intensive introductory course in all the major branches of chemistry, including biochemistry. The level at which material is introduced will vary so as to adjust to the backgrounds of the students. The laboratory will include some open ended experiments designed to develop an appreciation for creative research. Admission to the course is by invitation of the professor in charge of the course and is not restricted to chemistry majors. Three lectures and one three-hour laboratory period per week. Registration only with permission of instructor. (Cr. 4, 4)
302. Analytical Chemistry. Principles and applications of classical wet analytical techniques such as gravimetric and volumetric methods, as well as modern analytical techniques, such as electrochemistry, spectroscopy and chromatography. Statistical evaluation of analytical data. Three lectures and a four hour laboratory. **Prerequisite:** CHEM 102. (Cr. 5)

309-310. Physical Chemistry. The application of thermodynamics to the study of the states of matter, phase equilibria, chemical equilibria, thermal chemistry, and electrochemistry. Chemical kinetics, diffusion and the migration of ions. Elucidation of the molecular structure of matter by classical physical and quantum mechanical considerations. **Prerequisite:** CHEM 102. **Corequisites:** MATH 201, and PHYS 102 or 108. (Cr. 3, 3)

311. Physical Chemistry Laboratory I. Laboratory studies of physical chemical measurements on gases, heats of chemical processes, equilibrium, emf and conductance. A four hour laboratory. **Corequisite:** CHEM 310. (Cr. 2)

319-320. Organic Chemistry. The chemistry of carbon compounds. Emphasis on structure and mechanisms of organic reactions. Three lectures and one problem period. **Prerequisite:** CHEM 102. (Cr. 3, 3)

323-324. Organic Chemistry Laboratory. Synthesis, purification, analysis, mechanistic studies and spectral characterization of organic compounds. Four hours of laboratory. **Prerequisite** or **Corequisite:** CHEM 319 for 323; 320 for 324. (Cr. 2, 2)

335. Inorganic Chemistry. The chemistry of the elements and their compounds. Industrial, biochemical, environmental, and geochemical applications of inorganic chemistry are emphasized. The periodic table, elementary bonding models and thermodynamic data are used to organize, understand, and predict chemical and physical properties of inorganic compounds. Three lectures. **Prerequisite:** CHEM 102. (Cr. 3)

336. Inorganic Chemistry Laboratory. Study of the properties, synthesis and characterization of inorganic compounds. Experiments include preparations of metallic and non-metallic elements from compounds; simple salts by wet and dry methods; common gases; coordination compounds; air sensitive compounds; organometallic compounds; high temperature superconductors. A four hour laboratory. **Corequisite:** CHEM 335. (Cr. 2)

410. Physical Chemistry Laboratory II. Laboratory studies of kinetics, spectroscopy, molecular structure and molecular modeling. A four hour laboratory. **Prerequisite** or **Corequisite:** CHEM 311. (Cr. 2)

415. Advanced Organic Chemistry. Structure, mechanism and synthesis in modern organic chemistry. An introduction to the chemistry of natural products and heterocyclic compounds will be included. Three lectures. **Prerequisite:** CHEM 320. (Cr. 3)

421. Advanced Topics in Chemistry. Advanced topics in chemistry will be either polymer chemistry or environmental chemistry. A student may elect this course more than once if the topics are different each time. Three lectures. **Prerequisites:** CHEM 310, CHEM 320. (Cr. 3)

427. Advanced Physical Chemistry. Topics in theoretical physical chemistry with an introduction to the chemical aspects of quantum and statistical mechanics, and group theory. Three lectures. **Prerequisite:** CHEM 310. (Cr. 3)

433. Biochemistry I. An introduction to the chemistry of biologically important amino acids, proteins, carbohydrates, lipids, vitamins and hormones. Enzyme kinetics and catalysis, protein structure and function, introduction to intermediary metabolism will be included. Three lectures. **Prerequisite:** CHEM 320. (Cr. 3)

434. Biochemistry II. Chemistry and metabolism of proteins, carbohydrates, and lipids. Protein folding and posttranslational modification. Three lectures. **Prerequisite:** CHEM 433. (Cr. 3)

435. Advanced Inorganic Chemistry. Molecular structure and bonding theory. Transition metal chemistry. An introduction to spectroscopy, catalysis, and organometallic chemistry. Three lectures. **Prerequisites:** CHEM 310 and 335. (Cr. 3)
436. Biochemistry Laboratory. Four hour laboratory with emphasis on techniques used in protein and enzymology laboratories. **Prerequisite** or **Corequisite:** CHEM 434. (Cr. 2)

437. Computers, Structures and Bonding. An intermediate level presentation of the fundamental ideas of metallic, ionic and covalent bonding. The consequences of these bonding schemes are then related to the plenitude of three dimensional chemical, biochemical and crystalline structure. The latest computer software of interest to chemists and biochemists is incorporated in a hands on approach in order to render chemical structures and deduce chemical properties based on the bonding pertinent to those structures using the computer for chemical literature searching and manuscript preparation. Three lectures. **Prerequisites:** CHEM 309, 320, and 335. (Cr. 3)

452. Advanced Spectroscopy. Molecular UV/Vis absorption and luminescence spectroscopy; atomic absorption and emission spectroscopy; nuclear magnetic resonance spectroscopy; infrared and Raman spectroscopy; mass spectroscopy. Three lectures and a four hour laboratory. **Prerequisite:** CHEM 302, 310, 320, 324, 410. (Cr. 5)

458. Biochemistry III. Biochemistry of the nucleic acids, DNA and RNA. Three lectures and a four hour laboratory. **Prerequisite:** CHEM 434. (Cr. 5)

460, 461. Chemical Research. An investigation of an original nature carried out by the student under the guidance of a faculty member; a brief written report is submitted to and approved by the faculty of the department. (Cr. 1, 2)

571. Physical Biochemistry. Quantitative characterization and analysis of macromolecules with applications of biochemistry and molecular biology. Emphasis on the principles and application of laboratory techniques including chromatography, electrophoresis, hydrodynamic methods and spectroscopy. Three lectures. **Prerequisite:** CHEM 434. (Cr. 3)

**BIOLOGY (BIOL)**

Dr. Lance S. Evans  
Chair of the Department

Many of the critical problems that the world faces, which challenge values and beliefs, can best be understood with a knowledge of biological principles. Accordingly, the mission of the Department of Biology is to give our students an appreciation of the methods, potentials, achievements, and limitations of the biological sciences, and to instill in them the intellectual and ethical skills to use this information effectively. To accomplish this, the Department provides a combination of required and elective courses in biology consistent with a liberal education and maintains a tradition of strong support for independent study and undergraduate research. The faculty members of the joined Department of Biology recognize their responsibility to teach the values that are important to the process of free inquiry, the foundation of our discipline.

The department fosters the utilization of research strategies to address scientific questions, fosters the abilities of students to communicate scientific principles and fosters critical thinking skills of students. Faculty has knowledge of the degree that students should be prepared for advanced studies and professional careers.

**Majors:** Every student considering a major in the department must consult their faculty advisor by the end of the first semester.

**Major Requirements for the B.S. Degree:** Recognizing the various professional goals of our students, the department offers groups of courses in several areas of study which contribute toward reaching a specific career objective. These areas of study include Pre-Medical-Dental, Pre-Professional, Research, Environmental Biology, Education, General Studies in Biology, and Pre-Physical Therapy.

Students who wish to prepare for professional or graduate school require 8 credits in introductory Biology courses including 111, 112, 113, and 114 and a minimum of 34 credits in upper-class Biology courses for the B.S. degree include all of the following: 217, 223, 225, 231, 301, 305,
319, 320, 321, and 404. Students plan an individual program of study with their Biology courses and free electives after consultation with an advisor of the Biology Department.

Students who wish to pursue Pre-Medical-Dental studies are urged to take 302, 304, 401, 405, and 426.

Students who wish to pursue Pre-Professional studies are urged to take 302, 304, 401, 405, 416, and 426.

Students who wish to pursue Environmental Biology studies are urged to take 304, 311-411, 409, 431, and 432.

Students who wish to pursue Education Studies are urged to take 225, 326, 405, 426, 416, and 409.

Cognate Requirements: For all Biology Department B.S. majors: CHEM 101-102, 319-320, and 323-324; MATH 103-104; and PHYS 107-108 are required.

Major requirements for the B.A. degree: Recognizing that many students have a distinct interest in Biology, yet possess diverse and non-traditional career goals, the Department offers the B.A. degree with a relatively large number of electives. Students should use these electives to either minor or concentrate in any of the humanities, social science or business disciplines. This program does not prepare students for medical/professional school, graduate studies in Biology, or physical therapy programs unless other prerequisites are met. The program is intended to help students obtain employment in medical and pharmaceutical sales, medical writing, careers in public health and safety and the insurance industry as it relates to health care.

Minors: 15 credits in Biology courses planned in consultation with and approval of the Chair of the Biology Department.

Grade Requirements: Majors and minors must attain a minimum grade of C in all biology courses. Prerequisites for Upper Level Biology Courses: BIOL 111-112 and 113-114 or the equivalent.

Registration for Advanced Courses: Permission of the academic advisor of the Biology Department is required for registration in all courses at the 300 and 400 levels.

A student may take 9 Biology credits in Research and/or Independent Study. However, only 3 of these credits may be in Independent Study.


113-114. General Biology Laboratory. Introduction to the methods and techniques of biological science. Three laboratory hours. Offered alternating semesters. Corequisites for BIOL 114: BIOL 111, 113. (Cr. 2, 2)

217. Genetics. Principles of chromosomal, molecular, quantitative, population, and evolutionary genetics. Two lectures, one problem period, and one two-hour laboratory period. Fall. (Cr. 3)

223. Ecology. Introduction to the study of the distribution and abundance of organisms. Survey of ecological principles at the level of individuals, populations, communities, and ecosystems with emphasis on quantitative analysis. Fall. (Cr. 3)

225. Microbiology. Introduction to microbial physiology, genetics, and ecology with an emphasis on the role of microbes in the environment and infectious disease. Two lectures and one three-hour laboratory period per week. Spring. (Cr. 3)

231. Evolution. An introduction to the central organizing theme in biology. Examination of the basic mechanisms for evolution at a variety of scales, from the molecular to ecological levels. Potential topics include: microevolution, speciation, and macroevolution. Two lectures and one three-hour laboratory period. Spring. (Cr. 3)

301. Comparative Chordate Anatomy. Structure and relationships of chordates. Two lectures and one three-hour laboratory period. Fall. (Cr. 3)
302. **Developmental Biology.** A study of the cellular and molecular processes underlying the development of various organisms. Emphasis will be placed on fertilization events, spatial organization, pattern formation and gene action in development. Two lectures and one three hour laboratory period. Spring. (Cr. 3)

304. **Invertebrate Zoology.** Morphological and physiological characteristics of selected invertebrates and consideration of their ecological relationships. Two lectures and three laboratory hours. Spring. (Cr. 3)

305. **Plant Science.** Physiological, biochemical and anatomical aspects of plants will be studied in the context of their native environments. The molecular, hormonal and physiological basis for plant adaptations will be stressed. Two lectures and one three-hour laboratory period. Fall. **Prerequisite:** CHEM 319. (Cr. 3)

310, 311, 410, 411. **Research in Biology.** Investigation of challenging problems. Four hours/credit per week including a conference with sponsor. Sponsorship by a faculty member of the Biology Department must be obtained in advance. Fall, Spring. (Cr. 3)

318. **Advances in Nutrition.** Recent developments in human nutrition with emphasis on clinical conditions. Recommended for upperclass pre-health professional students. Two lectures and three laboratory hours. Spring. (Cr. 3)

319. **Cell Metabolism/Physiology.** Dynamic aspects of the physiology and biochemistry of the cell, including thermodynamics, oxidation/reduction, respiration, enzymes, membranes, cell signaling and metabolic pathways. Two lectures and three laboratory hours. Fall. **Prerequisite:** CHEM 319. (Cr. 3)

320. **Animal Physiology.** A detailed examination of the major organ systems of the human body, including digestion, respiration, endocrine, cardiovascular, urinary and reproduction, centered on the theme of homeostasis. Two lecture hours and three laboratory hours. Spring. **Prerequisite:** CHEM 319, BIOL 319 or CHEM 433. (Cr. 3)

321. **Molecular Cell Biology.** In-depth analysis of molecules directing cellular structure. Emphasis will be placed on the molecular mechanisms of cellular function and interactions. Topics will include: organelle structure/function, intra- and intercellular signaling, and cell cycle control. Two lectures and one three-hour laboratory per week. Spring. **Prerequisite:** BIOL 217. (Cr. 3)

326. **Animal Behavior.** The biological basis of animal behavior from an ecological and evolutionary perspective. Two lectures and three laboratory or field hours. Spring. Suggested **Preparation:** MATH 211. (Cr. 3)

360, 460. **Independent Study in Biology.** Independent study of an area in biology. Ten hours per week including a conference with sponsor. Sponsorship by a faculty member of the Biology Department must be obtained in advance. Fall, Spring. (Cr. 3 per semester)

375, 475. **Internship.** Fall, Spring. (Cr. 3 per semester)

401. **Histology.** Cellular structure and ultrastructure of mammalian tissues and organs utilizing light and electron microscopy. Two lectures and three laboratory hours. Fall. (Cr. 3)

404. **Biology Colloquium.** Study and discussion of biological topics and the completion of a monograph. One discussion period. Spring. (Cr. 1)

405. ** Neurobiology.** An examination of the basic principles of the nervous system including the cellular and molecular biology of the neuron, synaptic transmission, sensory and motor systems and their integration. Two lectures and three laboratory hours. Fall. **Prerequisite** or **Corequisite:** BIOL 319. (Cr. 3)

406. **Special Topics in Biology.** Current problems and studies in biology. Consult department chair for topic. Three lectures. Fall. (Cr. 3)

409. **Marine Biology.** Principles of marine ecology in an oceanic environment with emphasis on tropical communities. Lectures will be held on campus with the field portion of the course to be taught during the mid-semester recess in the Caribbean. Spring. **Prerequisites:** BIOL 111-112, 115-116, or 101. (Cr. 3)
416. **Tissue Culture.** Principles and methods of animal tissue and cell culture with the emphasis on mammalian culture of cell lines and primary culture from rat tissues. The course stresses laboratory techniques including maintenance of sterility and culture conditions, use of laminar flow hood, phase contrast microscopy and photomicroscopy, preparation and contents of a variety of media, cryogenic storage of cells, indirect immunofluorescence, monoclonal antibodies, and biochemical characterization of cell specific markers. Two hours of lecture and one three-hour laboratory session per week. **Fall** (Cr. 3)

426. **Immunology.** Study of fundamental properties of antigens and antibodies. Theories of antibody production, tolerance, transplantation immunity, autoimmunity, tumor immunology, and immunochemistry. Introduction to antibody-mediated and cell-mediated reactions. Three lectures. **Spring.** (Cr. 3)

431. **Freshwater Ecology.** Study of the ecology of freshwater communities, including physical, chemical, and biotic components. Field-oriented laboratories emphasize comparison of major freshwater systems. Two lectures and one, three hour laboratory per week. **Fall.** 

Prerequisite: BIOL 223. (Cr. 3)

432. **Estuarine and Coastal Ecology.** Studies of estuarine and near-shore marine ecosystems with emphasis on local temperate habitats. Two lectures and three field or laboratory hours. **Fall.**

Prerequisite: BIOL 223. (Cr. 3)

The following courses are offered for and are restricted to students majoring in departments other than Biology. Under no circumstances, except with permission of the Chair, will students majoring in Biology receive major credit for the following courses.

115-116. **Principles of Biology.** An introduction to the basic principles and concepts of biology. Aspects of cell and molecular biology, physiology, genetics, evolution, and ecology are studied with emphasis on the human organism. Two lectures and one discussion period. Offered alternating semesters. **Corequisite:** BIOL 117-118. (Cr. 2, 2)

117-118. **Principles of Biology Laboratory.** Appropriate laboratory exercises to illustrate the principles and concepts discussed in BIOL 115-116. An introduction to the methods and techniques used by the biologist. Three laboratory hours. Offered alternating semesters. **Corequisite:** BIOL 115-116. (Cr. 2, 2)

207-208. **Anatomy and Physiology.** Structure and functions of the organs and systems of the human body with expanded coverage of topics such as mechanisms of disease. Two lectures and one three-hour laboratory period. Offered alternating semesters. Biology majors in the Education studies and Pre-Physical Therapy studies may take this course for Biology credit. (Cr. 3, 3)

222. **Biology for Engineers.** The general principles of modern science and biology, with focus on engineering solutions to biological problems, including pollution, bioremediation, genetic engineering and risk assessment. Three lectures. **Spring.** (Cr. 3)

224. **Biology for Engineers Laboratory.** Introduction to the methods and techniques of biology, and their relationship to engineering principles found in biological systems. Two laboratory hours. **Spring.** (Cr. 1)

306. **Physiology of Exercise.** The investigation of human physiological responses to exercise in relation to age, sex, physical fitness, and environmental conditions. Two lectures and two laboratory hours. **Fall.** Biology majors in the Pre-Physical Therapy studies may take this course for Biology credit. (Cr. 3)

309. **Kinesiology.** The study of mechanical and anatomical aspects of human movement. Accepted for major credit only for students in the physiology of exercise concentration. Two lectures and one laboratory hour. **Spring.** Biology majors in the Pre-Physical Therapy studies may take this course for Biology credit. (Cr. 2)

333. **Human Pathophysiology.** Understanding the underlying mechanisms of disease, the rationale for designated treatments, and the complex interrelationships between critical systems. Two lectures. **Fall.** 

Prerequisites: BIOL 207-208. Biology majors in the Forensic studies may take this course for Biology credit. (Cr. 2)
334. **Pharmaco-Physiology.** Discussion of disease states and their treatment by pharmaco-logical means. Special emphasis will be placed on the descriptive influence of pathology on systemic function and the use of drugs to restore balance. Two lectures. Spring. **Prerequisite:** BIOL 207-208 (Cr. 2)

441. **Cardiovascular Biology.** Anatomical, physiological, pathological and nutritional aspects of the human cardiovascular system. Three lectures and a monograph based on library research or supervised laboratory experience at a hospital cardiac stress testing laboratory for students who have successfully completed BIOL 443. Three lecture hours. Spring. Biology majors in the Pre-Physical Therapy studies may take this course for Biology credit. (Cr. 3)

443. **Basic Electrocardiography.** The understanding and interpretation of basic normal and abnormal electrocardiographic patterns. Two lectures. Fall. Biology majors in the Pre-Physical Therapy studies may take this course for Biology credit. (Cr. 2)

445. **Therapeutic Prescriptions, Exercises, and Modalities.** Understanding prescriptions for the rehabilitation of specific disorders through the use of exercise and modalities. Fall. **Prerequisite:** Permission of instructor. Biology majors in the Pre-Physical Therapy studies may take this course for Biology credit. (Cr. 2)

**CHEMICAL ENGINEERING (CHML)**

Dr. Ann Marie Flynn  
*Chair of the Department*

**Requirements for a Minor in Chemical Engineering**  
CHML 207, 208, 305, 306, and one additional course from CHML 308, 321, 439, CHEM 319, BIOL 217 or BIOL 321.

207. **Process Calculations.** Introduction to chemical engineering with principal emphasis on material and energy balance calculations. Application to chemical and environmental processes undergoing physical, chemical and thermal changes. Three lectures. Fall. **Prerequisites:** CHEM 101, MATH 103. **Corequisite:** CHEM 102. (Cr. 3)

208. **Chemical Engineering Principles I.** Introduction to fluid mechanics. Dynamics of fluids in motion; laminar and turbulent flow, Bernoulli’s equation, friction in conduits; flow through fixed and fluidized beds. Study of pump and compressor performance and fluid metering devices. Three lectures. Spring. **Prerequisites:** CHML 207, MATH 104. (Cr. 3)

305. **Chemical Engineering Principles II.** Theory and practice of heat transfer. Fundamentals of conduction and convection, with application to design of heat transfer equipment and systems. Three lectures. Fall. **Prerequisite:** CHML 207. **Corequisite:** MATH 203. (Cr. 3)

306. **Separation Process Design I.** A study of the principles of mass transfer operations. Application to the design of stagewise and continuous separation processes with emphasis on absorption and distillation. Three lectures. Spring. **Prerequisites:** CHML 305, MATH 203. (Cr. 3)

308. **Chemical Engineering Thermodynamics.** Application of the first and second laws to chemical systems. Thermodynamic properties of pure fluids and mixtures, phase equilibria and chemical equilibria. Thermodynamic analysis of industrial processes. Three lectures. Fall. **Prerequisites:** ENGS 205, MATH 201. (Cr. 3)

316. **Computer Simulation and Design.** The use of a chemical plant simulation program in the solution of process engineering problems. A study of the structure of large scale simulation software, including the physical property data base, unit process simulation, and flow sheet integration. Two lectures plus a two-hour computer laboratory. Spring. **Prerequisites:** CHML 305, ENGS 116. **Corequisites:** CHML 306, 321. (Cr. 3)

and fluid bed reactors. Three lectures. Spring. **Prerequisites:** CHEM 310, CHML 308, MATH 203. (Cr. 3)

**403. Chemical Engineering Laboratory I.**
Quantitative laboratory studies of operations such as fluid flow, filtration, heat transfer, mass transfer and fluidization which illustrate the fundamentals of momentum, heat and mass transfer. Laboratory safety, technical writing, and oral presentation skills are emphasized. Four hours of laboratory, field trips. Fall. **Prerequisites:** CHML 208, 305, 306. (Cr. 2)

**404. Chemical Engineering Laboratory II.**
A continuation of the topics in CHML 403. Experimental topics include distillation, drying, fluidization, reaction kinetics, membrane processes, and computer-controlled processes. Laboratory safety, technical writing, and oral presentation skills are emphasized. Five hours of laboratory, field trips. Spring. **Prerequisites:** CHML 306, 321, 423. **Corequisite:** CHML 439 (Cr. 2)

**405. Process and Plant Design I.**
Application of the principles of chemical engineering to the design of chemical processes. The sequence of design methods and economic evaluations utilized in the evolution of a chemical process design, from initial process research to preliminary equipment design, is developed. Students work in three-person groups on a comprehensive plant design. Technical writing required. Two lectures and one two-hour problem period. Fall. **Prerequisites:** CHML 208, 305, 306, 321. **Corequisite:** CHML 423 (Cr. 3)

**406. Process and Plant Design II.**
Continuation of the design projects from CHML 405. Application of safety constraints, loss prevention, hazards evaluation, and engineering ethics to design of chemical processes and plants. Computer simulation software used for process design. Industrial review of design projects. Written and oral reports required. Two lectures and one two-hour problem period. Spring. **Prerequisites:** CHML 316, 405, 423. **Corequisite:** CHML 439. (Cr. 3)

**423. Process Control.** A study of the unsteady state behavior of processes as it relates to design of control systems. Applications in reactor control, level control, and control of distillation columns. Three lectures. Fall. **Prerequisites:** CHML 306, 321, MATH 203. (Cr. 3)

**430-431. Chemical Engineering Project.**
An independent investigation, including literature, theoretical and/or experimental studies of a chemical engineering project under the supervision of a faculty advisor. (For students of superior ability.) Written and oral reports required. Fall and Spring. **Prerequisite:** Permission of Department Chair. (Cr. 2-3)

**439. Separation Process Design II.** Design of equipment and systems for separation processes based on rate-controlled mass transfer. Applications in liquid extraction, absorption, drying, crystallization, and membrane separation. Three lectures. Spring. **Prerequisite:** CHML 306. (Cr. 3)

**511. Transport Phenomena.** Development of the mass, energy and momentum transport equations. Use of these equations in solving chemical engineering problems. Three lectures. Spring. **Prerequisites:** CHML 208, 305, 306, MATH 203. (Cr. 3)

**525. Bioreaction Engineering.** Application of engineering principles to biological processes. Topics include enzyme-catalyzed reactions, kinetics of cell growth and product formation; aeration, agitation and oxygen transfer; bioreactor design and scale-up; biological waste treatment, and fermentation laboratory experiments. Three lectures. **Prerequisites:** CHML 306, 321 (Cr. 3)

**535. Air Pollution Control.** Emphasis on particulate control. Industrial sources and regulatory codes for particulate emissions; review of fine particle technology; development of performance equations and design procedures for gravity settlers, cyclone-electrostatic precipitators, baghouse and venturi scrubbers; atmospheric dispersion and stack design; overview of gaseous control equipment. (Cr. 3)

**539. Introduction to Industrial Catalysis.** An industrially-oriented course designed to teach students the fundamentals and application of catalysts used in chemical, petroleum and environmental industries. Application of chemistry, materials, surface science, kinetics, reactor design and general engineering as applied to making
everyday products. Role of catalysts in the effective production of transportation fuels, modern catalytic converters for automobiles, bulk chemicals, polymers, foods, fertilizers, etc. Three lectures. **Prerequisite:** Senior Status*. (Cr. 3)

549. Advances in Combustion and Fuel Process Technologies. The course will cover fundamentals and advances in flame theory, combustion, fuels and oxidizers; experimentation, simulation and modeling; emission controls; toxicology; clean fuel conversions, and alternative fuels. **Prerequisites:** CHML 207, 305, 306, 308, 321, MATH 203. (Cr. 3)

550. Engineering Economics. Interest, cash flow diagrams, investment balance equation, analysis of economic alternatives (cost only and investment projects) using annual worth, present worth, and discounted cash flow. Effects of depreciation and income taxes. Economic optimization of engineering systems. Three lectures. **Prerequisite:** Senior Status*. (Cr. 3)

572. Accident and Emergency Management. Chemical process safety, including emergency planning and response; fires, explosions and other accidents; dispersion fundamentals, applications and calculations, hazard and risk assessment; legal considerations. Three lectures. **Prerequisite:** Senior Status*. (Cr. 3)

574. Green Engineering Design. Multi-disciplinary considerations and techniques for greener engineering design; Historical perspective of the Industrial Revolution and the impacts of industrialization; Industrial activity and the environment, including energy usage and resource depletion; Improved industrial and municipal (POTW) operations, including process design and development; Green engineering economics, including life cycle cost assessment; Design for the environment, including waste prevention, water and energy conservation, and packaging; Wastewater treatment, air pollution and fugitive emissions control, and solid waste disposal methods; Sustainable development and the role of engineers. Three lectures. **Prerequisite:** Senior Status*. (Cr. 3)

* A prerequisite of “Senior Status” means that all junior chemical engineering courses have been passed. Exceptions require the approval of the department chair.
308. **Reliability Analysis in Civil and Environmental Engineering.** Statistics, data analysis and inferential statistics, distributions, confidence intervals. Application of statistics and probability theory in civil engineering disciplines: structures, water resources, transportation, environmental, and geotechnical. Three lectures. Fall. **Prerequisite:** MATH 203, ENGS 230 with a minimum of C grade. (Cr. 3)

501. **Water Resource Engineering.** An examination of water resource issues at local, regional and global scales. The course will include a review of water resources policy and regulation, an overview of the hydrologic cycle, sustainability principles and concepts, an examination of water supply for multiple uses, operation of dams and reservoirs, development of groundwater and surface water resources, watershed management and restoration, point and non-point sources of pollutants, and water quality control. Special emphasis will be placed on current and emerging water resource issues in the New York City and the Tri-state areas. Three lectures. Spring. **Prerequisites:** ENGS 204, CEEN 307. (Cr. 3)

(CIVL)  

201. **Introduction to Civil Engineering.** Plane surveying applied to engineering projects; linear and angular measurements; computations of areas and volumes; coordinate surveying; blueprint reading; construction document interpretation and preparation. Fall. (Cr. 3)

301. **Transportation.** Basic principles of transportation engineering/traffic engineering, highway design; examination of various aspects of the multi-modal transportation system including social, economic and political considerations; practical issues including data collection techniques, analysis and evaluation; the design process, standards and procedures; introduction to design criteria, roadway alignment, stopping sight distance, horizontal and vertical curves. Fall. (Cr. 3)

302. **Structural Analysis I.** Analysis of determinate structures; Reactions, Internal Resisting Forces, Shear and Bending Moment diagrams. System and segment equilibrium. Truss stability and analysis by joints and sections equilibrium. Beam deflection by moment area, elastic weight and conjugate beam. Truss deflection by virtual work. Influence lines and moving loads. Analysis project. Three lectures. Fall. **Prerequisite:** ENGS 230, CIVL 201 with a minimum of C grade. (Cr. 3)

305. **Computer Solutions of Civil Engineering Problems.** Matrix algebra, eigenvalue problems, nonlinear equations, simultaneous linear algebraic equations, numerical integration, initial value and boundary value problems in ordinary differential equations. Three lectures. Fall. **Prerequisites:** MATH 203, ENGS 230 with a minimum of C grade. (Cr. 3)

306 **Civil Engineering Materials.** Study of ferrous and nonferrous metals; physical properties in relation to the phase diagram. Consideration is given to plastics and other materials. The relationship of aggregates and the other constituents of concrete and related conditions to the strength and related properties of concrete. Study of physical properties of wood. Study of asphalt properties and application to pavements. Two lectures, one two-hour laboratory period. Fall. **Prerequisite:** ENGS 230 with a minimum of C grade. (Cr. 3)

309. **Steel Design.** Design of metal structures subjected to dead, live, snow, ice, wind and earthquake forces. Design of tension members, beams, columns, and connections according to the ASIC Specifications. Plastic design of beams. Design project. Use of AISC LRFD. Two lectures, one two-hour problem period. Spring. **Prerequisite:** CIVL 201, CIVL 302 with a minimum of C grade. (Cr. 3)

310. **Introductory Geomechanics.** Origins and basic properties of soil and rock. Principles of soil behavior under gravity stresses, fluid, and one-dimensional compression and consolidation. Shear strength of soils and rock. Ground improvement. One one-hour plus one two-hour lecture. Spring. **Prerequisites:** ENGS 230, CEEN 303, with a minimum of C grade. **Corequisite:** CIVL 311. (Cr. 3)

311. **Soil Mechanics Laboratory.** Soil description and classification systems. Site characterization. Index property tests for water content, par-
ticle-size distribution, and plasticity characteristics. Engineering parameter tests for permeability, one-dimensional compression and consolidation, shear strength, compaction characteristics, and California Bearing Ratio. Three-hour laboratory. Spring. **Corequisite:** CIVL 310. (Cr. 1)

**312. Structural Analysis II.** Analysis of statically indeterminate structures considering loadings, support movements and thermal effects. Mathematical modeling, virtual work, flexibility method, stiffness method, slope deflection, and moment distribution. Analysis and modeling of structures using general purpose finite element, and structural computer programs. Three lectures. Spring. **Prerequisites:** CIVL 302, 305 with a minimum of C grade. (Cr. 3)

**403. Civil Engineering Economy and Law.** Time value of money, equivalency, present worth, future worth, depreciation, economic comparisons; Law: contracts, torts & malpractice, patents & copyrights, business associations, commercial law, real estate law, environmental law. Three lectures. **Prerequisite:** Senior Status* (Cr. 3)

**404. Geology.** The origin, nature, and distribution of materials that comprise the Earth; dynamic internal and surface natural processes, with particular attention to their effect on engineered construction. One or more field trips outside the regular class schedule. Three lectures. **Prerequisite:** Senior Status* (Cr. 3)

**405. Water Quality Analysis.** Wastewater inputs, urban and agricultural runoff. Hydrology of rivers, lakes and estuaries; water quality models of dissolved oxygen, nitrogen and phosphorus relationships, toxic substances; biological impacts and effects. Three lectures. **Prerequisite:** ENGS 204. (Cr. 3)

**406. Structural Analysis III.** General introduction to vibration and dynamics of structures. Analysis of multistory and complex frames, bridges and other structures due to wind and seismic loading. Influence lines for statically indeterminate structures. Cables and space frames. Analysis of structures using state-of-the-art structural computer programs. Three lectures. Fall. **Prerequisite:** CIVL 312 with a minimum of C grade. (Cr. 3)


**409. Reinforced Concrete.** Design of reinforced concrete structures: materials and specifications, design of beams, columns, slabs and foundations. Ultimate strength, latest ACI Code. Theoretical, practical, economic and legal considerations. Design projects. Two lectures, one two hour problem period. Fall. **Prerequisites:** ENGS 230, CIVL 302, CIVL 312 with a minimum of C grade. (Cr. 3)

**410. Introduction to Geotechnical Applications.** Application of geomechanics principles to analyzing and designing foundations and slopes (unsupported and supported). Topics covered in detail include: shallow and deep foundations; unsupported-slope stability; lateral earth pressure theory and its application to basement and rigid retaining walls, anchored bulkheads, and braced excavations. Overviews of: construction and constructability; modern alternatives for earth retaining structures. Two two-hour lectures. Fall. **Prerequisite:** CIVL 309, 310 with a minimum of C grade. **Corequisite:** CIVL 409. (Cr. 4)

**411. Advanced Structural Design.** Design project to simulate engineering practice. Two lectures, one two-hour problem period. Spring. **Prerequisites:** CIVL 309, 312, 406, 409, 410 (Cr. 3)

**412. Highway Design.** Design standards and geometrics of highways; traffic volume and flow related to geometrics; economic study of highway alternates; basic pavement and drainage design; planning, location, and design of a segment of highway. Two lectures, one two-hour problem period. Spring. **Prerequisite:** CIVL 201, CIVL 301. Senior status or permission of the Chair. (Cr. 3)

**413. Hydraulics.** Looping pipe systems, three-reservoir problem; open channel flow, non-rectangular channels, critical flow at bridge piers and
415. Civil Engineering Projects. Individual student research or design projects, utilizing computer methods, experimentation and literature surveys. Proposal and report required. Under the sponsorship of a civil engineering faculty member; must be approved in writing by the Chairperson; for students of superior ability. Prerequisite: Senior Status* (Cr. 3)


532. Advanced Strength of Materials. Stresses in two and three dimensions; symmetrical and unsymmetrical bending; shear center; curved beams; beams on elastic foundation; thin plates and shells; torsion of non-circular sections; thick-walled cylinders. Three lectures. Prerequisite: ENGS 230, CIVL 312 with a minimum of C grade. (Cr. 3)

202. Fundamentals of Environmental Chemistry. The application of basic chemical principles to the water and sediment environments. Introductory geochemistry. Chemical speciation. Surface reactions, and redox phenomena including pE. The study of the chemistry of specific environmental topics including alkalinity, hardness, acid rain, water treatment process, heavy metal contamination, mining, radon and nuclear wastes. Three lectures. Spring. Prerequisite: CHEM 102. (Cr. 3)

212. Environmental Chemistry Laboratory. Performance of a series of individual experiments that illustrates the important principles of environmental chemistry and the actual techniques used in practice. Experiments include alkalinity and hardness, measurement of a metal-ligand binding constant, applied chemical kinetics, determination of Freundlich and Langmuir absorption relations, breakpoint chlorination studies, SEM-AVS measurements and their relationship to heavy metal toxicity in sediments, and the determination of the octanol-water partition coefficient for an important organic pollutant. Spring. (Cr. 1)

312. Air and Solid Waste Management. Introduction to air quality and solid waste management. Meteorology, atmosphere transport and dispersion; effects of air pollution on human health; indoor air quality and air quality monitoring; overview of the Clean Air Act and other standards. Solid waste characteristics and quantities; handling, processing, resource recovery and disposal of solid wastes, principles of landfill design. Three lectures. Spring. (Cr. 3)


408. Water and Wastewater Treatment Plant Design. Design and upgrade of a wastewater treatment plant; process sizing and plant layout, clarifier and plant hydraulics, diffused aeration system design with energy requirements; overall plant mass balances and cost analysis; hydraulic profile; water treatment plant process sizing, coagulation and filtration design and hydraulic profile. Two lectures and one two hour design period. Spring. Prerequisites: ENGS 204 CEEN 307. with a minimum of C grade, senior status or permission of the Chair. (Cr. 3)
410. Hazardous Waste Design. Fundamentals of hazardous waste management and treatment design. Includes review of current hazardous waste regulations, groundwater and air contaminant fate and transport concepts, and risk assessment. Primary focus on the design of treatment processes including air stripping of volatile compounds, bioremediation of contained aquifers and soils, and incineration. Emerging treatment technologies will also be presented. Spring. 

**Prerequisite:** ENGS 204. (Cr. 3)

435. Air Pollution Control Design. A study of the sources of industrial air pollution and the techniques for removing particulate and gaseous emissions. Methods for measuring pollutant levels in gas streams with emphasis on designing equipment and pollution control systems. Three lectures. Spring. (Cr. 3)

439. Environmental Engineering Projects. Individual student research or design projects, utilizing computer methods, laboratory experimentation, field studies and literature surveys. Proposal and report required. Under the sponsorship of an environmental engineering faculty member; must be approved in writing by the Chair; for students of superior ability. Fall, Spring. (Cr. 1-3)

505. Surface Water Quality Modeling. Principles governing the transport and fate of contaminants in surface water systems. Water quality standards, wastewater inputs, water quality modeling for water-borne disease, dissolved oxygen, and toxic chemicals. Engineering controls to meet water quality objectives and case studies are presented. Computer solution to some problems is required. Three lectures. Fall. 

**Prerequisite:** ENGS 204. (Cr. 3)

506. Water and Wastewater Treatment Processes. Study of the fundamental principles used to treat both drinking water and waste water. Drinking water treatment principles include Stokes law for particle settling, theory of coagulation and flocculation, porous media filtration, and disinfection. Principles for wastewater treatment include reactor analyses, growth and degradation kinetics for biological oxidation processes, anaerobic digestion of complex organics, and hindered and compression settling. Three lectures. Fall. 

**Prerequisite:** ENGS 204. (Cr. 3)

507. Geohydrology. Basic principles of groundwater hydrology and subsurface contaminant transport. Construction and use of flow nets; pumping well and aquifer response under confined and unconfined conditions. Contaminant sources, transport, and retardation; the behavior of nonaqueous phase liquids (NAPLs) in the subsurface. Design of groundwater extraction systems, subsurface cutoff walls, caps, and emerging technologies for soil treatment. Three lectures. Fall. 

**Prerequisites:** ENGS 204, CEEN 303. (Cr. 3)

508. Environmental Chemistry. An introduction to the chemistry of natural waters and the atmosphere. The application of the principles of physical and analytical chemistry to the solution of problems related to environmental engineering practice. The course also includes a unit on the relevant properties of organic compounds of environmental interest. Spring. 

**Prerequisite:** ENVL 202. (Cr. 3)

517. Environmental Law. Introduction to legal aspects of environmental regulations. Historical perspectives and current regulation for air, land and water quality. Application of “cradle to grave” tracking. Three lectures. Fall. (Cr. 3)

535. Surface Water Quality Laboratory. Field laboratory in the metropolitan New York area. Stream flow gauging, tracer studies, and dissolved oxygen water quality analyses. Written reports and oral presentations on data collection, data analysis, and engineering application are required. Two hour laboratory. Fall. 

**Corequisite:** ENVL 505. (Cr. 1)

536. Water and Wastewater Treatment Process Laboratory. Laboratory experiments involving the study of drinking water treatment processes including coagulation and flocculation, settling, filtration and over-all pilot plant design and operation. Also includes a laboratory on activated sludge treatment of wastewater and a treatment plant field trip. Fall. 

**Corequisite:** ENVL 506. (Cr. 1)
ENGS 204. Environmental Engineering Principles I. Introductory course in environmental engineering designed to provide the foundation for understanding local and regional environmental problems. Topics include mass balance concepts, chemical stoichiometry, reaction kinetics, water quality evaluations for surface and ground water systems, acid rain, risk assessment, water supply, water and wastewater treatment processes, and treatment of hazardous waste. Three lectures. Fall. Prerequisites: MATH 103, CHEM 101. (Cr. 3)

*A prerequisite of “Senior Status” means that all junior civil engineering courses must have been passed. Exceptions require the approval of the department chairperson.

COMMUNICATION (COMM)

Dr. Thom Gencarelli
Chair of the Department

The Communication Department seeks to provide students the opportunity:

• to understand and appreciate the power of language, image, and presentation in shaping private, public, and corporate opinion;
• to learn to apply language, image, and presentation in a broad range of critical and cultural areas; and
• to become ethical professionals in the broad areas of mass communication.

Majors: Students planning to major in the department must consult with the Chair by no later than their sophomore year. Transfer students with a background in communications must consult with the Chair and may present a portfolio of written and production-based work.

Requirements for a Major: 33 credits including 101, 110, and 201 to be completed by sophomore year and 409 to be completed during senior year. Upon completion of the three introductory courses, all Communication majors must select a concentration as their main area of study within the department and take five required courses in that area. In addition, they must take two elective courses from any area presuming the proper prerequisites. It is also expected that students will apply for an internship, which may serve as one of their electives.

The three areas of concentration are: broadcasting/telecommunication, journalism, and corporate communication (which includes advertising and public relations).

Broadcasting/telecommunications students must take 223, 308, 316, 350, and 419.

Additionally, Communication majors are required to minor or take a cluster in a relevant discipline. The rationale behind this requirement is that work in the information industries is not only about producing content for audi-
ences, readers, and users, but that it is more importantly about the nature of that content and its purpose. Students must therefore seek to develop expertise in a specific content area.

**Requirements for a Minor:** A minor in Communication consists of 15 credits. Students must take 101, 110, and 201. Upon completion of these courses, all Communication minors may then take any two courses presuming the proper prerequisites. The minor contract should be signed before registration for the second semester of Junior year and must be approved by the Chair.

**Grade Requirements:** Majors and minors must attain a minimum grade of C in all Communication courses.

**Communication Concentrations**

**Broadcast/Telecommunications**

**Required Courses**
Intro to Broadcasting 223  
Studio Television Production 308  
Scriptwriting 316  
Field and Post-production 350  
Advanced Television Production 419

**Recommended Electives**
Television Production Company 100  
Web Design 306  
Audio Production 317  
Electronic Journalism 335  
Media Criticism 340  
Corporate Video 360  
Intercultural Communication 371  
Internship 375  
Political Communication 400  
Mass Communication Law 406  
Independent Study in Communication 461  
Special Topics in Communication 470  
Internship 475

**Journalism**

**Required Courses**
Introduction to Journalism 209  
Reporting and Newswriting 213  
Web Design 306  
Advanced Reporting and Newswriting 318  
Feature Writing 338

**Recommended Electives**
Magazine Writing 214  
Corporate Communication Writing 305  
Electronic Journalism 335  
Sports Reporting and Writing 336  
Media Criticism 340  
Intercultural Communication 371  
Internship 375  
Political Communication 400  
Mass Communication Law 406  
Independent Study in Communication 461  
Special Topics in Communication 470  
Internship 475

**Core Course Descriptions**

For Freshmen, Sophomores, and Minors (these courses are prerequisites for all Communication courses, unless the Chair indicates otherwise) (9 Credits total)

**101. Introduction to Mass Communication.**  
A survey of the major fields of mass communication, their history and evolution, with emphasis on new media and on the way media function in modern society. (Cr. 3)

**110. Public Speaking and Presentation.**  
Basic principles of oral communication before audiences in a variety of settings, with emphasis on performing and persuading. Attention to
research, rhetoric, logic, and the use of technology to enhance public presentation.  (Cr. 3)

201. Ethics in Mass Communication.  A survey and analysis of major ethical and legal issues in the mass communication industry, its business and production practices, and its content.  Emphasis is on case studies from the industry.  **Prerequisite:** COMM 101.  (Cr. 3)

**For Seniors**

(3 Credits)

409. Senior Seminar.  Students will select a topic in their area of concentration, culminating in a major paper involving original research and an oral presentation in front of the class illustrated by audio-visual accompaniment.  **Prerequisite:** Senior Status.  (Cr. 3)

**Concentration Course Descriptions**

100. Television Production Company.  This one-credit course is open to non-majors, and is offered as a vehicle for students to produce a series of television programs during the semester for possible air on MCTV.  The format and length of the programs may vary.  This course does not carry credit toward the major.  (Cr. 1)

102. Quadrangle 1.  Basic elements of the news story, with emphasis on writing accurate, vivid campus news.  Introduction to journalism ethics, news-gathering techniques, and copyediting.  By permission of instructor.  (Cr. 1)

103. Quadrangle 2.  Survey of methods for writing features, investigative reports, editorials, and sports, with emphasis on documenting campus events and issues.  By permission of instructor.  **Prerequisite:** COMM 102.  (Cr. 1)

104. Quadrangle 3.  An internship with the campus newspaper, the Quadrangle, in which students work in editorial positions and with the paper's advisor.  Development of editing and newswriting skills.  Required attendance at staff and editorial board meetings.  **Prerequisites:** COMM 102 and 103.  (Cr. 1)

120. Forensics/Debate.  An introduction to strategies of argumentation and persuasion in oral presentation.  Emphasis on competitive debating.  **Prerequisites:** COMM 101 and 110, or permission of the Chair.  (Cr. 3)

209. Introduction to Journalism.  A study of the print journalism industry in the United States, including the history and purposes of journalistic practice, the present-day workings of the profession, and how the developments of electronic journalism and the Internet continue to impact and transform the role of journalism in political, civic, and social life.  **Prerequisites:** COMM 101 and 110.  (Cr. 3)

213. Reporting and News Writing.  A study of basic procedures and techniques of reporting, writing, and editing the news with emphasis on developing clear, vigorous writing.  Background readings in the media and American society.  Writing is limited to relatively basic stories: accidents, conferences, interviews.  **Prerequisite:** COMM 209.  (Cr. 3)

214. Magazine Writing.  Problems and methods in design, topography, and editing in magazine productions.  Students learn how to research, write, and market-quality articles in magazine format.  **Prerequisite:** COMM 213.  (Cr. 3)

215. Introduction to Advertising and Public Relations.  An introduction to the development of advertising and public relations as media practices and industries in the United States.  Includes an analysis of the history and development of each, current practices and techniques from both a theoretical and a practical perspective, and the impact of and trends resulting from the introduction of new media.  **Prerequisites:** COMM 101 and 110.  (Cr. 3)

223. Introduction to Broadcasting.  A study of broadcasting in the United States from its origins to the present.  Radio and television history, development, and technology are emphasized as well as analysis of the broadcasting industry from both a practical and theoretical perspective.  **Prerequisites:** COMM 101 and 110.  (Cr. 3)

305. Corporate Communications Writing.  Writing scripts for business environment on a variety of topics.  **Prerequisites:** COMM 209 or COMM 215.  (Cr. 3)
306. Web Design. This course will focus on the developmental process of the Internet and the World Wide Web. The history of the technology and the strategies behind it will be covered, as well as HTML, the language of the Internet. The class will gain a greater understanding of the growing possibilities and advantages of using and communicating through interactive multimedia in the place of traditional media. **Prerequisite:** COMM 209 or COMM 215. (Cr. 3)

308. Studio Television Production. The elements of television production techniques including camera, audio, lighting, staging, graphics, on-camera appearance, and directing. **Prerequisite:** COMM 223. (Cr. 3)

316. Scriptwriting. Planning and writing concepts for radio and television broadcasting in a variety of program areas. **Prerequisite:** COMM 223. (Cr. 3)

317. Audio Production. Techniques for audio engineering/processing and sound design for television production. **Prerequisite:** COMM 223. (Cr. 3)

318. Advanced Reporting and Newswriting. Students learn to handle complex, intellectually demanding material involving the real and pressing problems that exist in the world around them. **Prerequisite:** COMM 213. (Cr. 3)

335. Electronic Journalism. This course focuses on broadcast journalism and news writing for radio and television. Both hard and soft news writing and broadcast news editing are emphasized, as well as an overview of the role of the electronic news media in American society. **Prerequisite:** COMM 223. (Cr. 3)

336. Sports Reporting and Writing. This course is an introduction to sports journalism. A study of basic procedures and techniques of sports reporting, writing, and editing for both print and the electronic media will be emphasized. **Prerequisite:** COMM 213. (Cr. 3)

338. Feature Writing. Methods of researching and writing feature stories and commentary for the print media. Markets open to freelance writers, published articles, newspaper feature sections, and Sunday supplements. **Prerequisite:** COMM 213. (Cr. 3)

340. Media Criticism. A critical analysis of the mass media including major theories and research in the field. The course explores media institutions, content, and economic structure, and also offers an in-depth investigation into media effects and influence on individuals, society, and culture. **Prerequisite:** COMM 101 and 110. (Cr. 3)

350. Field and Post-production. An introduction to the equipment, techniques, and practices of electronic field production (EFP) and electronic news gathering (ENG), as well as to non-linear editing equipment and techniques used to produce packages using footage collected in the field. **Prerequisite:** COMM 308; broadcasting/telecommunications concentration students only. (Cr. 3)

360. Corporate Video. An introduction to the role and purpose of video production in corporate communication, including the types of productions carried out, their purpose, and how they are conceived and shaped based upon the intended audience. Basic productions will be carried out by the class. **Prerequisite:** COMM 215 or COMM 308. (Cr. 3)

371. Intercultural Communication. A study of the basic principles of intercultural communication and the impact of culture on one’s perceptions, beliefs, meanings, and communication. **Prerequisites:** COMM 101 and 110. (Cr. 3)

375. Internship for Juniors. Students participate in an off-campus training experience closely related to their area of concentration. Frequent meetings with the advisor plus a paper are required. **Prerequisite:** Junior status, 3.0 GPA, and permission of the student’s advisor or the Chair. (Cr. 3)

400. Political Communication. Examines from a theoretical and practical standpoint the planning, execution, and evaluation of communication strategies in modern political campaigns. **Prerequisites:** COMM 101 and 110. (Cr. 3)

406. Mass Communication Law. A course designed to cover the chief legal issues, especially in the regulated broadcast industries. Some legal problems to be considered: libel, national security, the meaning of the First Amendment,
privacy, shield laws, the press and the courtroom, the Federal Communications Act, and the FTC versus the advertising industry.

**Prerequisites:** COMM 101 and 110. (Cr. 3)

**414. Advanced Advertising Strategies.** This course will focus on advanced issues in advertising and build on those principles already treated: creating ads, media planning, campaigning, agency operation, and other topics. **Prerequisite:** COMM 215. (Cr. 3)

**419. Advanced Television Production.** Practical discussion of techniques in TV production. Practical experience is offered to improve lighting, proper use of special effects, and advanced graphics. Creativity is encouraged, utilizing the abilities acquired in television production. **Prerequisites:** COMM 350; broadcasting/telecommunications concentration students only. (Cr. 3)

**420. Advanced Public Relations.** The primary intent of this course is to examine public relations from a communicative perspective, integrating theory and practice. In doing so, students will participate in traditional class lectures and will be involved in all phases of the planning, implementation, writing for, and evaluation of a "real life" PR campaign and/or event, on the Manhattan campus and/or the surrounding areas. **Prerequisite:** COMM 215. (Cr. 3)

**422. Organizational Communication.** The organizational structure of a company will be explored with emphasis on practical experience in interviewing, resume writing, audio-visual usage, symposia, and sales presentations. Field visits are included in the course. **Prerequisites:** COMM 101 and 110. (Cr. 3)

**423. Programming.** An examination of philosophies and techniques used in programming television and radio stations and networks. The organizational set-up of programming departments, development of competitive strategies for radio and television schedules, and insights into audience behavior and measurement are emphasized. **Prerequisite:** COMM 223. (Cr. 3)

**461. Independent Study in Communication.** Independent study is designed for the student majoring in Communication with demonstrated proficiency to work independently on a project related to an area of communication and approved in advance by the Chair and project advisor. Frequent meetings with the advisor are required. Independent study is not typically offered for production-based projects. **Prerequisite:** Junior status and a 3.0 GPA. (Cr. 3)

**470. Special Topics in Communication.** This course deals with a topic in communication to be announced. Each topic is selected by the department and is in a specialized area. The course is offered as demand warrants. See the Chair for topics, prerequisites, and other details. This course can be repeated under different topics. (Cr. 3)

**475. Internship for Seniors.** Students participate in an off-campus training experience closely related to their area of concentration. Frequent meetings with the advisor plus a paper are required. **Prerequisites:** Senior status, 3.0 GPA, and permission of the student’s advisor or the Chair. (Cr. 3)

**SPEECH (SPCH)**

**204. Fundamentals of Speech.** The technique and preparation of informative and persuasive short speeches, and small group dynamics. Assessment of personal speech skills for effectiveness and self-improvement. Not open to students who have taken COMM 205 or COMM 110. (Cr. 3)

**COMPUTER INFORMATION SYSTEMS**

See page 157.

**COMPUTER SCIENCE**

See page 220.
COOPERATIVE EDUCATION (CO-OP)/INTERNSHIP PROGRAM

100. Seminar on Career Development. An intensive seminar designed to assist freshmen and sophomores in preparing for the world of work. This team-taught seminar provides an introduction to the resources available at Manhattan College to aid in the important process of self-assessment and occupational exploration which precedes intelligent career decisions. Students who complete this seminar will be aware of the difference between simply finding a job and designing effective career plans. For more information, contact the Center for Career Development, Miguel Hall 500. (Cr.0)

401. Internship. Practical off-campus work experience in business, industry, government, social or cultural organization related to the student’s studies and/or career interests. Student is required to first pre-register in the Cooperative Education/Internship Program. For more information, contact the Center for Career Development, Miguel Hall 500. (Cr.0)

402. Assimilating the Internship Experience (elective credit). In consultation with a faculty advisor, students design and complete an independent project related to their internship. This project aids in assimilating their practical off-campus work experience in business, industry, government or cultural organization with the students’ studies and/or career interests. Available to students in Arts, Science and Business subject to approval of the appropriate Department Chair and Dean. Student is required to first pre-register in the Cooperative Education/Internship Program and to obtain an internship placement prior to the start of the semester. A student may take this course twice for college credit presuming a different internship each time. For more information, contact the Center for Career Development, Miguel Hall 500. (Cr. 3)

403. Assimilating the Internship Experience (major/minor credit). (Same as above)Arts majors registering for credit bearing co-ops/internships use the following codes based on the major: 01-Communications, 02-

ECONOMICS AND FINANCE (ECON/FIN)

Dr. Fiona Maclachlan
Chair of the Department

The Department of Economics and Finance offers a broad choice of courses and two distinct majors: Economics and Finance. The aims of the department are (1) to prepare students for careers in industry, government, not-for-profit organizations, or economic research; (2) to provide an intellectual and professional basis for informed participation in contemporary society; (3) to direct the development of competent and well-disciplined students to undertake graduate studies in Economics and Finance. Prospective graduate students are advised to take the appropriate examinations (GRE, GMAT, or LSAT).

Every major in the department must consult with the Chair concerning the fulfillment of the requirements for the major and the electives that will be most suitable for his/her particular professional and academic development. Students planning to pursue graduate studies in economics or finance are strongly advised to develop a strong concentration in mathematics.

Requirements for a major in Economics:
In Arts and in Science, students must take ECON 201, 202, 301, 302, 334, and 433. A three credit course in business statistics or an approved substitute is also required. MATH 105 and 106 are strongly recommended. In Business, students must take ECON 301, 302, 334, and 433, plus three additional credits in Economics over and above the core courses required of all students in Business. A minimum grade of C is necessary to receive major credit.
Requirements for a minor in Economics:
In Arts and in Science, students must complete the following fifteen credits: ECON 201, 202, 334, and six credits of Economics electives approved by the Department Chair. In Business, students must take ECON 301, 302, and three approved credits in addition to the core courses required of all students.

Requirements for a major in Finance:
The major in Finance is available to students in Business only. Students must take FIN 302, 308, 420, 436, and three credits from the following: FIN 320, 408, 416, 440, 441 and 442. A minimum grade of C is necessary to receive major credit. Finance majors also have to take the core courses offered by the Department and required of all students in Business.

Requirements for a minor in Finance: In Arts and in Science, students must complete the following fifteen credits: ACCT 201, ECON 305, FIN 301, 308, and 436. In Business, students must complete FIN 302, 308 and 420, in addition to the core courses required of all students in Business.

ECONOMICS (ECON)

General Courses

201. Principles and Policies I: Macroeconomics. An introductory study of the determination of the level of production and the price level in the macroeconomy. Topics covered include inflation and unemployment, money and banks, federal budget and national debt, monetary and fiscal policy, economic growth and development, and exchange rates and international finance. (Cr. 3)

202. Principles and Policies II: Microeconomics. An introductory study of the behavior of households and business firms in the marketplace, including households as consumers and resource suppliers, business firms as producers of goods and services and buyers of resources, market structures for outputs and inputs, role of the government, and free trade vs. protection. (Cr. 3)

227. Business Statistics. Applications of statistical methods of data analysis and decision making. Coverage includes: descriptive statistics, statistical measures and estimation, testing of hypotheses, linear regression and correlation analysis. Use of computer software for statistical analysis and business applications. Prerequisites: MATH 105. (Cr. 3)

301. Intermediate Price Analysis. Market and factor pricing under pure competition, imperfect competition conditions and monopoly; the pricing process and the allocation of resources. Prerequisites: ECON 201, 202, 227. (Cr. 3)

302. Intermediate Macroeconomics. The nature and causes of unemployment and inflation and the debate over the policies used to fight these problems in a global economy. Prerequisites: ECON 201, 202, 227. (Cr. 3)

305. Money and Banking. This course considers the nature of money, the markets that allocate money to a variety of uses, the institutions that create and control the money stock, the flow of money and how it is related to employment levels, GDP, inflation and interest rates, and international financial matters. Much attention will be paid to problems and issues requiring the attention of policymakers. Prerequisites: ECON 201, 202. (Cr. 3)

Special Area Courses/Electives

International

334. International Economics. A study of international trade and financial relationships. Topics covered include theory of international trade, public and private barriers to trade, commercial policy of the U.S., regional economic integration, foreign exchange markets, balance of payments, disequilibrium and the adjustment process, international monetary systems, and economic development of the developing nations. Prerequisites: ECON 201, 202, and by permission of instructor. (Cr. 3)

335. Political Economy. This course deals with determinants of economic growth and development from a global perspective. The political and legal environment will be given
attention alongside economic factors. Issues facing transitional and developing economies will be given special focus. **Prerequisites:** ECON 201, 202. (Cr. 3)

**421. The Japanese Economy.** An interdisciplinary study of the important features of the Japanese economy including culture, management, economic organization, distinctive institutions and industrial policy; how these compare to the U.S., and how these have contributed to Japan's economic success. The course also considers Japan's evolving economic relationship with the U.S. and why Japan's economic performance has deteriorated in recent years. **Prerequisites:** ECON 201, 202. (Cr. 3)

**Quantitative**

**433. Econometrics.** A systematic attempt of setting theoretical hypotheses about economic reality against empirical evidence produced by real-world situations and problems. Emphasis is on the process and application of statistical inference through the use of various distributions and on the estimation and measurement of relationships among economic variables. **Prerequisites:** ECON 201, 202 and 227 or its equivalent. (Cr. 3)

**Other**

**332. Environmental Economics.** An analysis of the relationship between social behavior, environmental degradation, economic principles and public policy. Topics include pollution, extinction, sustainability, population growth, global warming, acid deposition, hazardous waste, poverty, and health. This course also considers the viability and success of public policies designed to alleviate the environmental problems. **Prerequisites:** ECON 201, 202. (Cr. 3)

**333. Public Finance.** A study of why a government role in the economy is needed and how it ought to be financed. It considers the nature of different types of government programs involving expenditures and the types of taxes used to raise revenues. It is concerned with the impact of government on the efficiency and equity of market outcomes. **Prerequisites:** ECON 201, 202, 227. (Cr. 3)

**405. Labor Economics.** A study of the labor market, employment and wage determination; theories that explain wage differentials and unemployment; and alternative policies that can reduce labor market problems. **Prerequisites:** ECON 201, 202, 227 or by permission of instructor. (Cr. 3)

**422. History of Economic Thought.** A historical and analytical perspective on the developments of economic ideas and the major schools of thought. Special attention will be given to important economic thinkers such as Adam Smith, John Stuart Mill, Karl Marx and Alfred Marshall. The purpose is to understand why economics is what it is today. **Prerequisites:** ECON 201, 202. (Cr. 3)

**441. Economics Seminar.** A program of supervised research and reading related to a theme or topic of economics. Open to a limited number of students majoring in economics or finance who meet the departmental requirements and have the approval of the Chair of the Department. Open to economics and finance majors only. (Cr. 3)

**470. Economics Tutorial/Independent Study.** A single-semester tutorial course, related to a particular topic of economics, directed by a faculty member from the department. Open to qualified students who meet the departmental requirements and have the approval of the Department Chair and the Dean. (Cr. 3)

**471. Economics Thesis Project I.** An in-depth program of research, under the direction of a member of the department (mentor), leading to a comprehensive research proposal which includes a topic, a review of the literature, the research methodology, sources of data and potential results. Open to qualified students who meet the departmental requirements and have the approval of the Department Chair and the Dean. (Cr. 3)

**472. Economics Thesis Project II.** An in-depth program of research, under the direction of a member of the department (mentor), leading to a completion of the research project proposed in ECON 471 Thesis Project I. A defense of the thesis is required. **Prerequisite:** ECON 471 Thesis Project I. (Cr. 3)
301. Principles of Business Finance I. An overview of modern finance concepts and a survey of fundamental issues. Topics include basic finance terminology, time value of money, basic financial statement analysis, the structure and functions of financial markets and institutions, bond and stock valuation, and elementary capital budgeting. **Prerequisites:** ECON 201, ECON 227, ACCT 201.

302. Principles of Business Finance II. Building upon the tools in FIN 301, a survey of the firm’s basic financial decision-making tools and strategic considerations. Topics include working capital management, various capital budgeting techniques, cost of capital, risk and return, and basics of the foreign exchange and forward markets. **Prerequisite:** FIN 301. (Cr. 3)

308. Investments. An introduction to the markets and instruments in investments including equity and debt securities, mutual funds, and basic derivatives including options and futures contracts as well as the principles governing the selection and management of portfolios of financial assets. **Prerequisites:** ECON 201, 202, FIN 301. (Cr. 3)

320. Financial Statement Analysis. This course covers financial statement analysis for security valuation. It discusses the investment environment and the use of financial statements in valuation models, analyzes information contained in the four financial statements and provides guidelines for forecasting future financial statements for valuation. **Prerequisites:** ACCT 201, 202 and FIN 301. (Cr. 3)

408. Financial Intermediaries. This course provides an understanding of the operation of commercial banks, thrifts, insurance companies, investment banks, brokers, investment companies, credit unions and pension funds. Attention will be given to current trends and policy issues in the financial services industry. **Prerequisites:** ECON 305 and FIN 301. (Cr. 3)

416. Options and Futures Markets. Analysis of the nature and use of derivative securities in general, and options, futures, and swap contracts in particular. Topics include market institutions and trading practices, valuation models, and hedging and risk management techniques. **Prerequisites:** ECON 305, FIN 301, FIN 308. (Cr. 3)

420. Corporate Structure and Financing. A survey of the different types of capital structures and the various ways they are financed. Topics include strategic decisions concerning financial leverage, the corporation’s attempts to maximize its value, dividend policies, leasing, raising of debt and equity, refunding operations, investment banking techniques, mergers and acquisitions, and bankruptcy. **Prerequisites:** FIN 301, 302. (Cr. 3)

436. Multinational Finance. An exploration and analysis of the behavior of multinational firms. Topics covered include the nature and mechanics of the foreign exchange market, impact and management of foreign exchange risk, foreign project evaluation, direct and portfolio investments, accounting exposures, balance of payments and trade accounts, and the legal and political risks and constraints surrounding multinational corporations. **Prerequisite:** FIN 301, FIN 302. (Cr. 3)

440. Advanced Topics in Finance. Select treatment of current topics in finance including financial engineering, behavior of the financial markets, the crises among financial institutions, changing financial environment, and the development of new financial products by non-banks and securities firms. **Prerequisites:** ECON 305, FIN 301, 302, 308. (Cr. 3)

441. Finance Seminar. A program of supervised research and reading related to a theme or topic of finance. Open to a limited number of students majoring in economics or finance who meet the departmental requirements and have the approval of the Chair of the Department. Open to economics and finance majors only. (Cr. 3)

442. Financial Modeling. This course provides an understanding of the statistical analysis and financial modeling in the fields of investment and computational finance. Topics include regression analysis, constrained and unconstrained optimization, Capital Asset Pricing Model, and models assessing efficiency in the foreign exchange market. **Prerequisites:** FIN 301, 302, ECON 227. (Cr. 3)
470. Finance Tutorial/Independent Study. A single-semester tutorial course, related to a particular topic of finance, directed by a faculty member from the department. Open to qualified students who meet the departmental requirements and have the approval of the Department Chair and the Dean. (Cr. 3)

471. Finance Thesis Project I. An in-depth program of research, under the direction of a member of the department (mentor), leading to a comprehensive research proposal which includes a topic, a review of the literature, the research methodology, sources of data and potential results. Open to qualified students who meet the departmental requirements and have the approval of the Department Chair and the Dean. (Cr. 3)

472. Finance Thesis Project II. An in-depth program of research, under the direction of a member of the department (mentor), leading to a completion of the research project proposed in FIN 471 Thesis Project I. A public defense of the thesis is required. Prerequisite FIN 471 Thesis Project I. (Cr. 3)

EDUCATION (EDUC)
Dr. Gloria Wolpert
Chair of the Department

201. Principles and Practices of Education. Current issues in education; the process of becoming an educator; historical and philosophical foundations of education; legal and ethical responsibilities of educators, parents, and community; the organization and financing of schools; implications of the multicultural nature of schools; the role of technology in the teaching and learning process; the state of education in the United States and the world. 15 clock hours in field experiences are required as follows: childhood and dual 15 hours at any level; adolescent 15 hours in either 7-9 or 10-12 (must be the alternative choice for EDUC 202). 2008-2010. (Cr. 3) Open only to students matriculated in this school, or those who have formally declared a minor in Education.

202. Psychology of Education. Current issues in education; major theories and research in learning and cognition related to children and adolescents; the impact of multiple intelligences; culture, gender, and socioeconomic status on learners; the evolution and research foundation of special education; the uses of technology in the learning process in the teaching-learning and research process; the application of research to the analysis of pedagogical practices and learning. 15 clock hours in field experiences at the middle or adolescent level, coordinated with EDUC 201. 2008-2010. (Cr. 3) Open only to students matriculated in this school, or those who have formally declared a minor in Education.

205. Theory and Practice. Professional examination of the decision to become a teacher; characteristics of effective teachers and the development of a sense of community and respect for one another. Theoretical and technical dimensions of teaching and learning; the complexity of the educational environment; and issues in education. 12 clock hours required in field to include observation of teachers and diverse learners in a variety of contexts (6 hours in grades 1-3 and 6 hours in grades 4-6). Spring Semester. (Cr. 3) Open only to students matriculated in this school.

214. Education of the Young Child. Overview of child development from birth through age eight, with an emphasis on standards, major theories, techniques, methods and materials that are appropriate for use with this population. 30 field hours required. (Cr. 3) Open to all students eligible to take it as an elective.

301. Nature and Needs of Students with Disabilities. Overview of historical, social and legal foundations of special education. The etiology and characteristics of the mentally retarded, emotionally disturbed, physically disabled, blind, deaf, learning disabled and gifted students; use of assistive technology; emphasis on curriculum, educational and vocational programs; placement alternatives for the disabled; exploration of community services which support the student and family. 20 clock hours of field experience required. Childhood and Dual complete 10 hours in grades 1-3 and 10 hours in grades
4–6. Adolescent completes 20 hours in a middle school, grades 7–9. 2008–2010.  (Cr. 3)
Open to all students.

303. Child and Adolescent Development. Exploration of child and adolescent development including physical, cognitive, and psychosocial, with an emphasis on the major theories and research related to understanding normal development, individual differences and assessment of those differences. Behavior problems that impact development (e.g., drug abuse, child abuse) are emphasized. 2008–2010. (Cr. 3)
Open only to students matriculated in this school, or those who have formally declared a minor in Education.

318. Curriculum and Pedagogy in the Elementary Classroom. Development and application of skills and strategies associated with the art and science of teaching are introduced through an examination of the Standards and of the relationship between annual, unit and lesson planning. Clinical simulations, including videotaping presentations will be used to develop skill in planning, presenting and assessing lessons and in self reflection. 2008–2010. 
Prerequisite: EDUC 205. (Corequisite for transfer students.) (Cr. 3)
Open only to students matriculated in this school.

343. Teacher and Student Learning Styles. Analysis and interpretation of learning styles. Psychological, cultural, multi-cultural, and disabling influences on learning style are studied together with appropriate pedagogical strategies. 2008–2010.  (Cr. 3)

344, 345, 346. Supervised Fieldwork. Permission of Chair of Education and Dean is required. 2008–2010.  (Cr. 1–3)

347, 348, 349. Supervised Research. Permission of Chair of Education and Dean is required. 2008–2010.  (Cr. 1–3)

350, 351, 352. Independent Study in Education. An opportunity for students to strengthen specific competencies within the prescribed course of study or to develop additional competencies. Students work under the supervision of a member of the department. Permission of the Chair of Education and the Dean is required. 2008–2010.  (Cr. 1–3)

353. Integrated Learning: Grades 1–3. The developmentally appropriate, integrated curriculum for grades 1–3 is examined. This includes the content areas of language arts, social studies, science, mathematics, art and music. The course focuses on methods and materials; appropriate practices; strategies for dealing with children with special needs; techniques for assessing teaching and learning effectiveness; and the use of technology and computers to enhance learning and instruction. 30 hours in a 1–3 classroom is required. Fall Semester. Prerequisite: EDUC 318 (Corequisite for transfer students). (Cr. 3)
Open only to students matriculated in this school.

354. Integrated Learning: Grades 4–6. The developmentally appropriate, integrated curriculum for Grades 4–6 is examined. This includes the content areas of language arts, social studies, science, mathematics, art and music. The course focuses on methods and materials; appropriate practices; strategies for dealing with children with special needs; techniques for assessing teaching and learning effectiveness; and the use of technology and computers to enhance learning and instruction. 30 hours in a 4–6 classroom is required. Field placement must be in a middle school for adolescent education majors seeking certification downward. Spring Semester. Prerequisite: EDUC 318 (Corequisite for transfer students). (Cr. 3)
Open only to students matriculated in this school.

355. Assessment and Remediation of Reading and Social Studies. Study of standardized, formal, informal, ongoing, and alternative measures used in the assessment of at risk and disabled populations with emphasis on the areas of reading in the content area of social studies. Ways to report and use assessment information is reflected through instructional planning in inclusive and special education classrooms along with strategies to communicate assessment information to parents. 15 hours field work required in a special education setting. 2008–2010.  (Cr. 3)
Open only to students matriculated in the school of Education.
356. Assessment and Remediation of Math and Science. Management of assessment and instructional skills and competencies needed to provide effective remediation based on information gathered through assessment of students in inclusive special education settings, individually or in groups. Emphasis is on methods and strategies for standards based instruction with emphasis in the areas of mathematics, science, and the arts. 15 hours field required in a special education setting. 2008-2010. (Cr. 3)

Open only to students matriculated in this school.

357. Curriculum Adaptation. Provides students with the opportunity to use information gathered through assessment, adapt instruction and identify appropriate pedagogical strategies for the special education and at-risk students in inclusive and self-contained classrooms. Emphasis is on NYS standards for content and universal design to accommodate diverse learning styles, individually and in group settings, and the use of technology to enhance learning. 2008-2010. (Cr. 3)

Open only to students matriculated in this school.

360. Language and Literacy. Introduction to language acquisition and literacy development by native English speakers and students who are English language learners. Techniques for developing listening, speaking, reading and writing skills. 10 hours field required. 2008-2010. (Cr. 3)

375. Theoretical Foundation of Teaching and Learning in the Middle School. Physical, cognitive, social and emotional development of the middle school adolescent. Examination of philosophical and psychological grounding of Middle School. Application of diverse instructional strategies including integrated curriculum, interdisciplinary teaching, and teaming of students and teachers. 30 hours field required. 2008-2010. (Cr. 3)

Open only to students matriculated in this school.

376. Curriculum and Methods of Teaching English Grades 7-12. Curriculum, methods and materials for integration and multidisciplinary approaches for teaching English and Language Arts—reading, listening, speaking and writing; application of learning theory and the use of developmentally appropriate practices; strategies for dealing with special needs; assessing teaching and learning effectiveness. Students will develop lessons for grades 7-12. 30 hours field experience required, 15 in a middle school and 15 in a secondary school. Prerequisite: 6 credits in required education courses; Min GPA 2.50 in academic concentration and in education courses. Required for childhood education majors seeking upward certification grades 7-9. All 30 field hours must be completed in a middle school setting for an upward extension. 2008-2010. (Cr. 3)

Open only to students matriculated in this school.
379. Curriculum and Methods of Teaching Foreign Language Grades 7-12. Curriculum, methods and materials for integration and multidisciplinary approaches for teaching foreign languages—French and Spanish; application of learning theory and the use of developmentally appropriate practices; strategies dealing with special needs; assessing teaching and learning effectiveness. Students will develop lessons for grades 7-12. 30 hours field experience required, 15 in a middle school and 15 in a secondary school. Prerequisites: 6 credits in required education courses; Min GPA 2.50 in academic concentration and in education courses. Required for childhood education majors seeking upward certification for grades 7-9. All 30 field hours must be completed in a middle school setting for an upward extension. 2008-2010. (Cr. 3) Open only to students matriculated in this school.

380. Curriculum and Methods of Teaching Science Grades 7-12. Curriculum, methods and materials for integration and multidisciplinary approaches for teaching science—biology, chemistry, earth science, general science, and physics; application of learning theory and the use of developmentally appropriate practices; strategies for dealing with special needs; assessing teaching and learning effectiveness. Students will develop lessons for grades 7-12. 30 hours field experience required, 15 in a middle school and 15 in a secondary school. Prerequisite: 6 credits in required education courses; Min GPA 2.50 in academic concentration and in education courses. Required for childhood education majors seeking upward certification for grades 7-9. All 30 field hours must be completed in a middle school setting for an upward extension. 2008-2010. (Cr. 3) Open only to students matriculated in this school.

401. Principles and Practices of Reading in Elementary School. Principles of development and learning underlying reading instruction as part of the total communication process (listening, speaking, reading and writing). Methods for diverse learners (typical, disabled and gifted) from grades 1-6; materials, testing procedures and computer applications. 20 hours field experience required: 10 in grades 1-3, 10 in grades 4-6. 2008-2010. (Cr. 3) Open to all students.

402. Reading in the Content Area. Teaching for comprehension in the content areas through reading and writing. Emphasis placed on methods of teaching vocabulary, comprehension, study skills, and writing. Assessment of individual differences of general and special needs students as a basis for providing appropriate instruction. 10 hours in field required. 2008-2010. (Cr. 3) Open to all students.

406. Human Relations in the Educational Process. A study of the problems and potential of communication in the American pluralistic society and the implication for education: stereotyping, prejudice, drug and child abuse, disabled people, minority group culture and values. The role of personality, social perception, stress, group dynamics in human relations will be discussed. Different approaches to resolving tensions will be examined. Efforts to develop human relations values in educators by small group experiences, sensitivity and skills development. Identification and reporting suspected child abuse. 2008-2010. (Cr. 3) Open only to students matriculated in this school, or those who have formally declared a minor in Education.

408. Management of Behavior and Learning for At-Risk and Disabled. Study of biological, behavioral, psychosocial, humanistic and cognitive approaches to classroom management and instruction; emphasis on the application of strategies and methods for students with behavior and learning problems in the mainstream and special education setting; methods of developing social skills. Services in the school and community that strengthen partnerships with families are examined. (25 hours)
Field observation required. 2008–2010. (Cr. 3)
Open only to students matriculated in this school, or those who have formally declared a minor in Education.

418. Seminar, Observation & Student Teaching in Elementary School, Grades 1-3. (Cr. 3)

438. Seminar, Observation & Student Teaching in Elementary School, Grades 4-6. (Cr. 3)

Participants in EDUC 418 and EDUC 438 gain general experiences and meet specific requirements to acquire proficiency in teaching at the 1-3 and 4-6 grade levels. Seminar sessions include discussions of building community in classrooms; understanding the characteristics of children, including children with disabilities; content across the curriculum; professional responsibilities; and the use of technology in elementary classrooms. The student teacher works formally and informally with the cooperating teacher at a local school and undergoes regular assessment and experiences in various ways. Applicants for this course may have no more than one course left to complete in their academic concentration and must have satisfactory scholastic backgrounds (min. Cum GPA 2.50 in concentration and education courses and overall) and meet the physical, mental, speech, language and other standards established for the profession. Applicants will be expected to show evidence of active participation in professional experiences. Prerequisites: EDUC 353 and EDUC 354 with a minimum grade of “C”. Senior status required. Approval of Chair of Education. Minimum of 20 full days at grades 1-3 and at grades 4-6. 2008–2010. Open only to students matriculated in Education.

444. Seminar, Observation and Student Teaching in Special Education Grades 1-3. (Cr. 3)

446. Seminar, Observation and Student Teaching in Special Education Grades 4-6. (Cr. 3)

Participants in EDUC 444 and 446 teach under the supervision of field associates and faculty in special education or inclusive settings. Experiences are designed to help students acquire proficiencies in teaching at the 1-3 and 4-6 grade levels. Seminar sessions include discussions of meeting the needs of students with disabilities; classroom management; teaching and assessing learning in all content areas across the curriculum; developing relationships that support student learning; and the use of technology in special education settings. The student teacher works formally and informally with the cooperating teacher at a local school and undergoes regular assessment and experiences in various ways. Applicants for this course may have no more than one course left to complete in their academic concentration and must have satisfactory scholastic backgrounds (min. Cum GPA 2.50 in concentration and education courses and overall) and meet the physical, mental, speech, language and other standards established for the profession. Applicants will be expected to show evidence of active participation in professional experiences. Prerequisites: EDUC 353 and EDUC 354 with a minimum grade of “C”. Senior status required. Approval of Chair of Education. Minimum of 20 full days at grades 1-3 and at grades 4-6. 2008–2010. Open only to students matriculated in Education.

453. Seminar, Observation and Student Teaching Grades 7-9. (Cr. 3)

454. Seminar, Observation and Student Teaching Grades 10-12. (Cr. 3)

Participants in EDUC 453 and EDUC 454 gain general experiences and meet specific requirements to acquire proficiency in teaching at the 7-9 and 10-12 grade levels. The student teacher works formally and informally with the cooperating teacher at a local school and undergoes regular assessment and evaluation. Knowledge gained in prior course work is applied to planning learning experiences, teaching and assessing the secondary school student. Student teachers attend weekly seminars in which they discuss effective communications; classroom management; knowledge of content; professional responsibilities; and meeting the needs of adolescent students with disabilities. Applicants for these
courses may not have more than one course left to complete in their academic concentration and must have satisfactory scholastic background (min. cum GPA 2.50 in concentration and education courses and overall) and meet the physical, mental, speech, and language standards established for the profession. Applicants will be expected to show evidence of active participation in professional experiences. Students must file an application with the Chair of Education during their junior year. Prerequisites: 15 credits of education including methods, with a minimum grade of “C”, senior status. 2008-2010.

Open only to students matriculated in Education.

ELECTRICAL AND COMPUTER ENGINEERING (EECE, CMPE, ELEC)

Dr. Robert Mauro
Chair of the Department

Requirements for a Minor in Computer Engineering

1. For all students except Electrical Engineering majors: CMPT 101, 102, EECE 229, 230 and one additional Computer Engineering course approved by the Department Chair.

2. For Electrical Engineering majors:

CMPT 101, 334 plus three elective Computer Engineering courses, of which at least two must be upper division or graduate, approved by the Department Chair. These courses cannot be used to simultaneously satisfy the requirements for Electrical Engineering.

Requirements for a Minor in Electrical Engineering

1. For all students except Computer Engineering majors:

EECE 203 or ENGS 203; EECE 229, 230, and a choice of sequence a, b, or c.
   a. EECE 303 and 304
   b. EECE 305 and 306
   c. Two upper division courses in Electrical Engineering (EECE, ELEC, CMPE) to be approved by the Department Chair.

2. For Computer Engineering majors:

ELEC 316, 456, plus three Electrical Engineering courses, of which at least two must be upper division or graduate, approved by the Department Chair. These courses cannot be used to simultaneously satisfy the requirements for Computer Engineering.

ELEC 202. Networks and Programming


CMPE 202. Introduction to Computer Programming

Introduction to object-oriented programming using C++. Topics: primitive and user-defined data types, searching and sorting, classes and objects, pointers and linked lists, recursion, stacks and queues. Four lectures. Fall. Prerequisite: ENGS 116. (Cr. 3)

EECE 203. Introduction to Electrical Systems


EECE 229. Introduction to Digital Systems

Basics of digital data representation. Logical design and optimization with small scale integrated circuits using gates, flip-flops, registers and counters. Logical design with medium scale integrated circuits. Computer arithmetic.
Bus structure and tri-state devices. ALUs and memory. Design of synchronous and asynchronous circuits. Introduction to VHDL. Four hours a week includes lectures, problem periods, and laboratory sessions. Fall. (Cr. 3)


EECE 303. Signals and Systems I. Modeling and analysis of continuous-time systems. Convolution of signals and representation of linear time invariant systems. Fourier series. The Fourier Transform and its applications. The Laplace Transform and its applications to continuous-time systems. Stability of continuous time systems. Four hours a week. Fall. Prerequisite: EECE 203. (Cr. 3)


EECE 315. Probability and Statistics. Basic concepts of probability theory, discrete and continuous random variables and their distributions, moments and characteristic functions. Empirical distribution functions. Parameter estimation and measures of their quality. Confidence limits. Linear regression. Hypothesis testing and statistical approaches to engineering decisions. Four lectures. Fall. Prerequisite: MATH 201. (Cr. 4)

EECE 316. System Dynamics. Model formulation techniques for physical systems. Transformation between state-space and classical system representations. Classical solution of LTI system equations. Time and frequency domain solutions of linear state equations. Three lectures. Spring. Prerequisite: EECE 303. (Cr. 3)


ELEC 403. Electric Machines; Design and Applications. Introduction to electrical machinery. Magnetic circuits. Single and three phase transformers. Autotransformers. Synchronous machines. Three phase induction motors. Direct current machinery. Three lectures. **Prerequisite:** Senior status.* (Cr. 3)

ELEC 408. Digital Systems Design. Design of selected SSI, MSI, LSI, and microcomputer-based digital systems from the following topic areas: oscillators, phase lock loops, one-shots, switch debouncing, sequential circuits, A/D & D/A conversion, motor control, waveform generation, and serial data transmission. Three lectures. Fall. **Prerequisites:** ECE 230, 306. (Cr. 3)

ELEC 409. Electrical Engineering Design. The design process utilizing electrical and computer engineering principles. Problem specification and constraints. Sources of information. Comparison of alternate solutions. Group or individual reports required. Three lectures. Spring. **Prerequisites:** ECE 304, 306. (Cr. 3)

CMPE 410. Computer Engineering Design I. Design of computer processing hardware. Design examples include finite state machines, integer adders and multipliers, data paths and processor control. Students will design and implement a special-purpose data processor. CAD tools for design entry, simulation, synthesis and timing verification. Use of VHDL. Implementation with FPGAs. Three hours a week includes laboratory sessions. Fall. **Prerequisites:** ECE 230. (Cr. 3)

CMPE 411. Computer Engineering Design II. Design and implementation issues related to digital signal processors. Students will design, implement and test an operational digital signal processor using programmable logic. Spring. **Prerequisites:** CMPE 410. (Cr. 3)

ELEC 417-418. E.E. Laboratory III-IV. Experiments in the areas of computers, power, communications, controls, high frequency techniques. Experiment design techniques. One-hour lecture, three hours laboratory. **Prerequisites:** ECE 230, 306, 318. (Cr. 2, 2)

ELEC 419-420. Senior Project. Independent investigation, under the guidance of an approved advisor and the sponsorship of an electrical engineering faculty member, terminating in a final report, and when feasible, a tested design. Written permission of departmental chair is required. (Cr. 1-3, 1-3)


EECE 427. DSP System Design. The design of modern digital signal processing software and hardware using actual DSP devices, analog interfacing to DSP hardware. A review of Signal processing concepts, design of FIR & IIR filters, design of algorithms for computing the FFT and Inverse FFT, analog interfacing hardware on the DSK board, the use of the MatLab Signal Processing package as a part of the overall DSP system design process. **Prerequisites:** ECE 303, ECE 304. (Cr. 3)


EECE 436. Computer Graphics. Basic concepts of computer graphics systems including display devices, graphics software and the display of solid object. Point plotting procedures; line drawing algorithms and circle generators. Displays and controllers; storage and refresh devices. Two dimensional transformations; clipping and windowing. Graphics software; windowing functions, display files; geometric models. Interactive raster graphics. Three dimensional graphics including surface display, perspective and hidden surface removal. A project will be carried out in the Electrical Engineering Computer Laboratory. Three lectures. **Prerequisite:** Senior Status*. (Cr. 3)

EECE 438. Multimedia Techniques. Introduction to multimedia, PC architecture and assembly language basics. Color TV and video concepts. PC audio standards, the MIDI music standard, and audio signal processing. Multimedia presentation and authoring techniques. HTML authoring and the fundamentals of the World Wide Web. Prerequisite: Senior Status or approval of Department Chair. (Cr. 3)

EECE 441. Robotics. Introduction to the operation of industrial manipulators. Robotic theory including homogeneous coordinate transformations; kinematics and dynamics of articulate manipulator arms, and elements of feedback control theory. The design of hardware and software used for motion control. Introduction to computer vision and artificial intelligence. Three lectures. Prerequisite: Senior Status*. (Cr. 3)

ELEC 453. Microwave and Optical Devices. An introductory lecture and demonstration (laboratory) course designed to familiarize the student with microwaves & optical concepts, devices, and measurement techniques. Topics include microwave & optical sources, measurement of power, reflection coefficient & impedance, Use of isolators & directional couplers at microwave & optical frequencies. Propagation of Gaussian beams, polarization of optical waves, optical modulation and detection. Prerequisite: Senior Status*. (Cr. 3)

ELEC 454. Power Systems. Introduction to power plants and the electrical power system. Transmission line RLC parameters and line modeling. System representation, the per unit system and the one-line diagram. Symmetrical components. Short circuit analysis. Economic operation of power systems. Load flow studies. Three lectures. Prerequisite: Senior Status*. (Cr. 3)


ELEC 456. Communication Systems. An overview of digital and analog communication systems. Conditioning of data signals to the channel. Modulation and demodulation techniques. Sampling and quantizing. Limitations on system performance due to channel constraints, including power, bandwidth, and noise. Modern system configuration including an introduction to telecommunications. Three lectures. Prerequisites: EECE 303, 315. (Cr. 3)

EECE 463. Instrumentation Methods. Detection, acquisition, and analysis of information from the environment. Topics will include: sensors and measurement methods, biomedical instrumentation and transducers for the measurement of biological signals, information conditioning, computer control of data acquisition, and interpretation of results. Three lectures. Prerequisite: Senior Status*. (Cr. 3)

ELEC 466. Energy Sources. Considerations of the economic, health, environmental, and political ramifications of renewable and non-renewable energy sources (solar, fission, fusion, hydro, wind, and fossil fuel energies). Basic science in direct energy conversion. Physical principles, mathematical analysis, and applications of solar cells and thermoelectric generators/heat pumps. Three Lectures. Prerequisites: ELEC 202, 308; PHYS 201. (Cr. 3)

EECE 467. Physical Electronics. Exploring the operation of electrical and electronic devices, focusing on the internal physical laws that determine their utility and limitations. Thermal, optical, electrical, magnetic and quantum properties; energy audit, waves. Transducers, heat sinks, diodes, solar cell, LED, TEDs, FET, memories, nanostructure. Three lectures. Prerequisites: PHYS 101, 102. (Cr. 3)
CMPE 470. Electromagnetics for Computer Engineers. An introduction to the Electromagnetic principles which describe the transmission properties of wire, fiber optics, and wireless networks used in telecommunication systems. Topics include: Fundamentals of Transmission Lines; Electrostatics; Magnetostatics; Time-varying Fields and Plane Waves; Wave Reflection; Elements of radiation. Prerequisites: PHYS 102, MATH 201. (Cr. 4)

CMPE 471. Telecommunications. Modern telecommunications systems for voice, video, and data utilizing wire, fiber, and wireless. Wire communications systems for voice and video – telephone systems basics. Digital communications pulse modulation, coding techniques including digital video. Data transmission using modems – asynchronous and synchronous formats, error detection and data compressions. Computer networks, local and wide area. Fiber communications systems. Prerequisite: EECE 303. (Cr. 3)

EECE 472. Computer Networks. The course describes and investigates Local and Wide Area Networks. Description of topologies and protocols for ETHERNET and TOKEN RING. The OSI model and applicability to LANs. IPX/SPX and TCP/IP protocols. Protocols stacks for PC’s. Server based and peer to peer networks. Network operating systems including NETWARE and NT Server Connectivity devices, hubs, bridges, switches, and routers. The Internet and Internet access. WANs including ATM, SONET, ISDN, and other high speed networks. Prerequisite: Senior Status*. (Cr. 3)

EECE 490. Tutorial. Individual reading and research under faculty supervision. Acceptance by an electrical engineering faculty member and written permission of chair of department required. Prerequisite: Senior Status*. (Cr. 3)

EECE 491. Special Topics in Electrical and/or Computer Engineering. Topics of current interest to senior electrical engineering students. Subject matter will be announced in advance of semester offering. Written permission of the chair is required. Prerequisite: Senior Status*. (Cr. 3)

EECE 493–494. Senior Thesis. Guided research. Prerequisites: Acceptance by Faculty Adviser and written permission of the chair is required. (Cr. 2.2)

EECE 520. Computer Architecture I. Evolution of computer architecture from the von Neumann concepts and the CISC machines to the RISC machines. Hardware and Software design methods. Processor design; Data representation and instruction sets. Control design: Hard-ware and Microprogrammed. Memory organization: Virtual, segmentation and cache; system organization: Bus control, I/O and operating systems. Prerequisite: Senior Status*. (Cr. 3)

EECE 530. Wireless Technology. Introduction to wireless communication systems, the cellular concept & trunking. Spread Spectrum Systems: direct sequence & frequency hopping. Multiple access techniques (FDMA, TDMA, CDMA), speech coding, Power Control. Techniques for mitigation of propagation impairments: equalization, diversity & channel coding. Analysis & design of systems following global standards & protocols for various wireless communication systems such as PCS, Wi-Fi (IEEE 802.11), WiMax (IEEE 802.16), Mobile-Fi (IEEE 802.20), Bluetooth and mobile IP. Prerequisites: EECE 303, EECE 315. Corequisite: EECE 304.

ELEC 547. Optical Information Processing Systems. Response of linear spatially invariant systems; signal detection by matched filtering; mutual coherence; transform properties of linear optical imaging systems; optical information processing and filtering; linear holography. Permission of the Department Chair is required. Prerequisites: EECE 304, ELEC 310. (Cr. 3)

ELEC 548. Fiber Optics Communication. Optical fiber structures and physical characteristics; electromagnetic waveguiding properties and modes, fiber materials, loss mechanisms, and dispersion. Semi-conductor laser and Led sources and photodetectors. Connectors. Fiber measurements. Communication aspects of fiber transmission. Fiber system examples and design procedures. Three lectures. Prerequisites: EECE 304, ELEC 310. (Cr. 3)
EECE 591. Advanced Special Topics. Advanced topics in either Electrical or Computer Engineering open to those students who are enrolled or are considering participation in a Seamless Masters program; subject matter will be announced in advance of course offering. Prerequisites: Senior Status.* (Cr. 3)

*A prerequisite of “Senior Status” means that all junior electrical engineering courses must have been passed. Exceptions require the approval of the department chair and the Dean of Engineering.

ENGINEERING DESIGN
(ENGD)

Dr. Gordon Silverman
Interim Dean of Engineering

301, 302. The Company. A project course with students working on real Engineering problems conducted in a consulting/industrial firm format with input from professionals in the field. Students work in groups with faculty. Course involves analysis of specific problems, field sampling, and laboratory and computer analyses. Weekly progress reports are utilized, Engineering proposals are submitted and Engineering summary reports are presented in multimedia format to faculty and professionals to enhance oral and written communication skills. Students have status of Assistant Engineers and Engineers. Fall, Spring. (Cr. 3, 3)

401, 402. The Company. A continuation and further development of the projects in 301, 302. Students assume Project Management responsibility by leading the 301, 302 students in significant portions of the project while further developing advanced portions of the project. Continued development of communication skills with professional involvement. Students have status of Project Engineers and Project Managers. Fall, Spring. (Cr. 3, 3)

ENGINEERING SCIENCE
(ENGS)

Dr. Gordon Silverman
Interim Dean of Engineering

115. Introduction to Engineering. This course is designed around a variety of engineering themes. Each theme is related to one (or more) of the engineering disciplines offered through the School of Engineering. Every theme involves project work emphasizing design, problem solving methodologies, critical thinking, communication and team participation. All students participate in all projects. A course objective is to acquaint all students with each of the areas of engineering available through the School in order to assist them in their choice of major. Ethics, professional responsibilities, and economic concerns are part of the projects. Four hours of lecture and project work. Fall. (Cr. 3)

116. Introduction to Engineering Computation. Introductory course in computation for the practice of engineering. An introduction to structured programming using the Visual Basic programming language for the solution of engineering problems. The course will include one or more projects. In the course of completing the project(s), students are introduced to: use of the Internet as an information resource; computer application packages for engineering analysis and modeling; and computer applications for preparation of documentation and graphics. Two hours lecture, two hours of practical activities. Spring. (Cr. 3)

201. Materials Science. Atomic structure; crystallographic concepts; relationship of structure to properties of metals, ceramics and organic materials. Equilibrium and non-equilibrium relationships of multiphase materials. Methods for changing properties of materials. Three lectures, three-hour laboratory every second week. Fall and Spring. Prerequisite: CHEM 101. (Cr. 3)

202. Materials Science Laboratory. This is the laboratory portion of ENGS 201. Performance in the laboratory will be incorporated in the grade received in ENGS 201. Three hour laboratory every second week. Fall and Spring. (Cr.0)

204. **Environmental Engineering Principles I.** Introductory course in environmental engineering designed to provide the foundation for understanding local and regional environmental problems. Topics include mass balance concepts, chemical stoichiometry, reaction kinetics, water quality evaluations for surface and ground water systems, acid rain, risk assessment, water supply, water and wastewater treatment processes, and treatment of hazardous waste. Three lectures. Fall. **Prerequisite:** MATH 103, CHEM 101. (Cr. 3)

205. **Introductory Thermodynamics.** Definitions of energy systems, properties, and unit systems. Work, heat, and the first law of thermodynamics in open and closed systems. Applications to compressors, pumps, turbines, heat exchanger, and nozzles. The second law of thermodynamics and its effect on energy systems. Three lectures. Fall and Spring. **Prerequisites:** MATH 104, CHEM 101, PHYS 101. (Cr. 3)

206. **Statics.** Vector quantities, forces, and moments; resultants of force systems; free body diagrams and static equilibrium; analysis of truss, frame and machines in static equilibrium; dry friction; belt friction; first and second moments. Three lectures. Fall and Spring. **Prerequisites:** MATH 104, PHYS 101. (Cr. 3)

220. **Dynamics.** Kinematics of particles and rigid bodies in planar motion, work and energy, impulse and momentum; introduction to mechanical vibrations. Three lectures. Spring. **Prerequisite:** ENGS 206. (Cr. 3)

230. **Introductory Solid Mechanics.** Analysis of stress and strain due to axial, torsional, and flexural loads; beams, shafts, columns. Elastic deformation under axial, flexural, and torsional loads. Statically determinate and indeterminate problems; principles of superposition and compatibility. Elastic column buckling. Three lectures. Fall and Spring. **Prerequisite:** ENGS 206. (Cr. 3)

231. **Solid Mechanics Laboratory.** Application and verification of principles of mechanics of solids. Preparation of technical reports. Three hours. Fall and Spring. **Prerequisite or Corequisite:** ENGS 230. (Cr. 3)

**ENGLISH (ENGL)**

Dr. Rocco Marinaccio
Chair of the Department

The goals of the English major at Manhattan College are to develop in students an understanding of literary texts and issues that is coherent, informed, and broadly responsive; to develop in students the ability to articulate that understanding; and to develop that understanding through a range of courses in English, American, and world literature.

**Requirements for a Major in English:**
Thirty credits on the 300 level, including ENGL 306, 309, 310, and 372. Students in the School of Education with a concentration in English must take, in addition, one course among ENGL 326, 331, and 333, and also, if they are in Childhood Education, ENGL 365. Additional details about elective options for Education majors will be found in the Education section of this catalog. A minimum grade of C is required for all major courses. ENGL 110 or its equivalent is a prerequisite for all 300 level courses.

**Requirements for a Minor in English:**
Fifteen credits on the 300 level including either ENGL 309 or ENGL 372. A minimum grade of C is required for courses to satisfy these requirements. ENGL 110 or its equivalent is a prerequisite for all 300 level courses.

**095. English as a Second Language.** A course designed to improve the comprehension of both oral and written English for a non-native speaker. Punctuation, vocabulary development, fundamentals of English grammar, and
basic writing skills are stressed. Seven hours per week, including one in language lab. Special fee. Pass/Fail.

106. Fundamentals of English. The course is a methodical review of grammar and the composition of paragraphs and essays. The course prepares students to negotiate the demands of ENGL 110. Does not substitute for ENGL 110 or 211. Required for students designated by the Department Chair only. Pass/Fail. (Cr. 3)

110. College Writing. This course is designed to assist students in developing habits of writing, reading, and critical thinking needed for composing effectively within the academic community. The goal is to increase student understanding of the writing process and provide a set of rhetorical strategies to fulfill assigned tasks. A review of grammar and a study of research methods are included. (Cr. 3)

210. Exposition and Argumentation. An exploration of strategies for expository and argumentative writing, research techniques, and documentation styles. Emphasis is placed on analyzing data and incorporating research findings into informative and argumentative essays and research projects. This course will fulfill ENGL 110 requirement for advanced freshman students. (Does not satisfy literature requirement in Business, Education, or Engineering.) (Cr. 3)

211. Written Communication. An intermediate course focusing on the specialized communications skills required by professionals. Emphasis on research techniques and on the rhetoric and dictation necessary to persuade different audiences, as demanded by a variety of case studies. (Does not satisfy literature requirement in Business, Education, or Engineering). (Cr. 3)

248. Masterworks of British Literature. Readings selected from the prose, poetry, and drama of the British Isles from the Anglo-Saxon period to the present. (Cr. 3)

253. Masterworks of American Literature. Readings selected from the prose, poetry, and drama of America from the Colonial period to the present. (Cr. 3)

255. Elements of the Film. An introduction to the formal/aesthetic analysis of film. Through screening and discussion of representative films, students develop their ability to describe, analyze, interpret, and evaluate the film experience. Not open to students who have taken COMM 212. (Does not satisfy literature requirement in Business, Education, or Engineering.) (Cr. 3)

256. Types of Film Experience. An introduction to the cultural/ideological analysis of film. Through screening and discussion of representative films, students explore the ways in which cinema reflects and shapes contemporary society. Specific topics covered include, but are not limited to, race and ethnicity, gender and sexuality, and class and power as they relate to film experience. (Does not satisfy literature requirement in Business, Education, or Engineering). (Cr. 3)

260. Comedy and Tragedy. An attempt to define comedy and tragedy by examining texts in each genre. (Cr. 3)

265. Contemporary Literature. A comparative study of selected literary texts by African, Asian, Caribbean, Australian, and Latin and North American writers responding to the impact of Western colonization and imperialism. (Cr. 3)

270. Crime and Detection. The origin, development, and achievement of the detective story and the crime novel. Most readings will be drawn from 19th and 20th century authors, but some attention will be given to possible precursors such as Sophocles and Shakespeare. (Cr. 3)

274. Reading Poetry. An introduction to the experience of reading, interpreting, and evaluating poetry. (Cr. 3)

275. The Short Story. The origin, development, and theories of the genre as exemplified in short stories chosen from the major writers in this form. (Cr. 3)
276. Drama. A survey of world drama through selected play texts and representative dramatic styles, ranging from classical to contemporary. (Cr. 3)

277. Story Sequence. A study of the story, the story sequence, and the novel that attends to the achievements of narrative in each form. (Cr. 3)

279. Literature and the Environment. The study of the important role the environment plays in literary texts. Themes may include the relationship between the urban and the wild, the role of animals in human affairs, and the question of human stewardship of this planet. (Cr. 3)

280. The Irish Literary Revival. A study of the major Irish writers of the late 19th and 20th centuries whose works constitute the modern Irish literary renascence. (Cr. 3)

284. Myth and Fairy Tale. An introduction to selected traditional myths and western European fairy tales, focusing on the literary rather than on the oral folk tradition and analyzing the pervasive influence of myth and fairy tale on modern western literature. (Cr. 3)

285. Literary New York. A study of selected literary works in which New York City figures prominently as a subject, a metaphor, or a muse. (Cr. 3)

287. Fantasy and Science Fiction. An introduction to speculative literature: fantasy, gothic, and science fiction; their relation to each other; the relation of the fantastic to fiction. (Cr. 3)

305. African-American Literature. Examination of important texts by African-American authors, with special emphasis on recent writings. (Cr. 3)

306. Introduction to Literary Study. Learning to think and write like an English major. Emphasis on close reading of texts, developing a heightened sense of language, making cogent literary arguments with well-integrated evidence, and developing familiarity with literary terms and different critical approaches. Should be taken during the first semester of major course-work. For English majors and minors only. (Cr. 3)

309. British Literature: Beowulf to 1674. The development and continuity of British literature studied in significant writers, works, literary movements, social and historical backgrounds. For English majors and minors only. (Cr. 3)

310. British Literature: Restoration to 1939. Continuation of the study of key British writers, works, and literary movements and their social and historical backgrounds. For English majors and minors only. Prerequisite ENGL 309. (Cr. 3)

312. Studies in Medieval British Literature. An in-depth study of medieval writers, themes, genres, or literary movements through critical reading of prose, drama, and poetry of Great Britain. The subject to be studied will vary from semester to semester. (Cr. 3)

317. Studies in Lyric Poetry. The how and why of reading short poems: the attitudes and questions readers bring to the study of the lyric and the intellectual and aesthetic pleasures the lyric offers in return. Readings include both British and American poems written over the last five centuries. (Cr. 3)

323. Studies in Eighteenth Century British Literature. An in-depth study of eighteenth century writers, themes, genres, or literary movements through critical reading of prose, drama, and poetry from Great Britain. The subject to be studied will vary from semester to semester. (Cr. 3)

326. Advanced Composition. Non-fictional prose; analysis of models of the brief essay for practicing a variety of its forms. Does not satisfy literature requirement in Business, Education, or Engineering. (Cr. 3)

329. Shakespeare I. The comedies, histories, early tragedies, narrative poems, and sonnets. Not open to freshmen. (Cr. 3)

330. Shakespeare II. The problem plays, mature tragedies, and romances. Not open to freshmen. ENGL 329 is not a prerequisite. (Cr. 3)
331. History of the English Language. The development, structure, and function of the English language. (Does not satisfy literature requirement in Business, Education, and Engineering.) (Cr. 3)

332. Theories of Composition. An overview of contemporary composition studies, examining various movements in the field and the ways in which these movements define the act of writing. The course will focus on both theoretical principles of composition and practical concerns of writing pedagogy. (Cr. 3)

333. Grammar and Writing. An intensive study of modern English grammar in the context of writing. The course moves recursively between theory and practice, exploring the rules and conventions of usage in standard English and the complex functioning of these rules and conventions in writing. (Does not satisfy literature requirement in Business, Education, and Engineering.) (Cr. 3)

334. Studies in British Romanticism. An in-depth study of writers, themes, genres, and literary movements through critical reading of prose, drama, and poetry from the British Romantic period (1789-1832). (Cr. 3)

335. Studies in Victorian Literature. An in-depth study of Victorian writers, themes, genres, and literary movements through critical reading of prose, drama, and poetry from Great Britain. (Cr. 3)

337. Literature by Women. An exploration of women’s writing and the gender issues such writing raises. Topics may include questions of authorship, identity, difference, power, canon, sexuality, family, as they intersect with social categories like race and class. (Cr. 3)

338. Studies in Twentieth and Twenty-first Century American Literature. An in-depth study of twentieth and twenty-first century American writers, themes, genres, and literary movements through critical reading of prose, drama, and/or poetry. (Cr. 3)

340. Studies in Creative Writing. Advanced workshop in a genre of creative writing, usually poetry or fiction, with some generative exercises. Focus on developing voice and technical skills. Extensive study of form, genre expectations, and contemporary texts. Prerequisite: ENGL 240 or permission of instructor. (Cr. 3)

342. Medieval Literature (World Literature). Selected works of the early and late Middle Ages studied as expressions of medieval thought. (Cr. 3)

343. Literature of the Renaissance (World Literature). Selected literary works in their relations to the thought and culture of Europe, 1341-1674. (Cr. 3)

344. Romantics to Moderns (World Literature). Selected works of fiction, drama, and poetry representative of literary movements of the period. (Cr. 3)

345. Environmental Literature and Ecocriticism. An exploration of environmental literature, a genre whose primary focus is the natural world and the human relationship to it. Primary literary texts will be viewed through the lens of ecocriticism, an emergent critical theory that examines the representation of the natural world in literature and culture with a commitment toward environmentalism. (Cr. 3)

346. Twentieth Century Irish Literature. An examination, through readings in various genres, of the expressive and varied literature of Ireland in the twentieth century as well as the development of cultural narratives of Ireland. (Cr. 3)

347. Literature and War (World Literature). A study of the representation in fiction, poetry, drama, and film of such catastrophic human conflicts as the World Wars and the Vietnam War. (Cr. 3)

348. Contemporary Fiction (World Literature). A sampling of world fiction (in English) written in the last fifteen years. Authors employ widely divergent techniques to address the issues of colonialism, history, politics, social change, and art. Emphasis on the novel as an arena for heterogeneity of sensibilities and the clash of ideologies. (Cr. 3)

361. Masterpieces of British Drama. The tradition of British theatre in a wide range of theatrical styles and conventions, from medieval cycle plays to postmodern performance. (Cr. 3)
364. **The Modern Novel in English.** Major English, Irish, and British Commonwealth novels of the Modern era and their cultural contexts. This may include novels written in English, from India, Africa, and the Caribbean. (Cr. 3)

365. **Children’s Literature.** A study of widely read, influential and sometimes controversial books for children, surveying major achievements and genres in children’s literature, examining various approaches to the field, and commenting on social and pedagogical issues that surround it. Limited to students in the School of Education. (Cr. 3)

367. **Literary Criticism.** A study of major texts in criticism from Plato to the present, with special emphasis on the relation of critical theory to the experience of literature and on the relevance of the great critics of the past to current critical concerns. (Does not satisfy literature requirement in Business, Education, and Engineering.) (Cr. 3)

369. Chaucer. A study of *The Canterbury Tales*, *Troilus and Criseyde*, and the minor poems. (Cr. 3)

370. Milton. A study of *Paradise Lost*, *Paradise Regained*, *Samson Agonistes*, and selected shorter works. (Cr. 3)

372. **American Literature to 1914.** A study of major figures and significant trends in American Literature from the colonial era to 1914. For English majors and minors only. (Cr. 3)

374. **The American Novel to 1914.** A study of the American novel in the nineteenth century, an era in which it attained new popularity and came to occupy a special place in American culture. (Cr. 3)

375. **Studies in Early and Nineteenth-Century American Literature.** An in-depth study of writers, themes, genres, and/or literary movements in American literature before 1914. The subject to be studied will vary from semester to semester. (Does not satisfy ENGL 372 requirement.) (Cr. 3)

378. **American Literature: The Modern Age.** A study of major writers and significant trends in American literature from 1914 to 1945: fiction, drama, poetry. (Cr. 3)

379. **American Literature: The Contemporary Period.** A study of major writers and significant trends in American literature since 1945: fiction, drama, poetry. (Cr. 3)

380. **Ethnic American Literature.** The study of the literature of one or more ethnic groups in the U.S., with a focus on important themes and genres. (Cr. 3)

381. **Masterpieces of American Drama.** The study of landmark plays and theatrical styles reflecting America’s unique contribution to world drama. (Cr. 3)

392. **Topics in Literature.** An intensive study of a single author, genre, period, or literary form. The subject to be studied will vary from semester to semester. A student may elect this course as often as twice for college credit, presuming a different subject each time, but only once for credit toward the English major. (Cr. 3)

399. **Independent Study.** Individual study of a major writer or movement in English or American literature with a member of the department. Open only to seniors majoring in English who secure the approval of the Chair of the Department and the consent of the individual instructor. A student may elect this course once only. (Cr. 3)

400. **The Theater and the City: Drama in Performance.** Taking full advantage of the spectrum of Broadway and Off-Broadway performance, this course invites students to experience theater as a multi-dimensional and collaborative art. Class discussions, on-site performances, and behind-the-scene accounts of selected theatrical events will enlighten the students’ knowledge and appreciation of drama. (Special fee; permission of the chair.) (Cr. 3)

405. **Peer Tutor Training.** This course is designed to train students to be competent tutors in the Manhattan College Writing Center. By permission of instructor. (Cr. 1)
FINANCE

See page 182.

FINE ARTS (ART)

Dr. Mark A. Pottinger
Chair of the Department

The Fine Arts Department offers a minor in Music, Art History, and Digital Media/Studio Art with courses in a wide variety of chronological and topical subjects. The goals of the minors in Fine Arts at Manhattan College are to instruct students in the broad historical and cultural context in which the artwork is developed as well as study the current literature, theory, and technology affecting areas of the discipline today. A minor in Music, Art History, or Digital Media/Studio Art is an ideal choice for a variety of careers. In addition to preparing students for advanced training in Art or Music, the minor is also a wonderful asset in assisting the careers of historians, sociologists, psychologists, teachers, philosophers, copyright lawyers, non-profit business managers, writers, critics, journalists, museum curators, librarians, graphic designers, graphic illustrators, photographers, film producers, and advertising executives. To this end, several internship programs are in place to connect students with major record labels, local radio stations, New York City museums, private art galleries, and graphic design firms.

Requirements for a Minor in Music:
Fifteen credits of Music, including LLRN 207 (ART 102 may serve as a substitute), ART 208 or ART 209 (three semesters of ART 129, 130, 131, 132, or 133 may serve as a substitute), ART 220, and six credits either on the 300 level (including ART 300, ART 310, ART 330, or ART 390) or from special topic courses in Music (ART 400), presuming a different subject each time. ART 410 and CO-OP 403-04 may serve as a substitute for ART 402 or a 300-level course, presuming that the independent study or the internship focuses on a subject area within Art History. The minor contract must be signed and approved by the Chairperson. A minimum grade of C is required for courses to satisfy these requirements.

Requirements for a Minor in Art History:
Fifteen credits of Art History, including LLRN 209 (ART 120 may serve as a substitute), and twelve credits either on the 300-level (including ART 320, 321, 322, 323, and 360) or from special topic courses in Art History (ART 402), presuming a different subject each time. ART 404, ART 412, and CO-OP 403-04 may serve as a substitute for ART 402 or a 300-level course, presuming that the independent study or the internship focuses on a subject area within Art History. The minor contract must be signed and approved by the Chairperson. A minimum grade of C is required for courses to satisfy these requirements.

Requirements for a Minor in Digital Media/Studio Art:
Fifteen credits of Digital Media, including ART 212, ART 213, ART 214, ART 390, and three credits of ART 402. LLRN 209 or ART 120 may serve as a substitute for ART 402. ART 412 or CO-OP 403-04 may also serve as a substitute for one of the required courses listed above, presuming that the independent study or the internship focuses on a subject area within Digital Media/Studio Art. The minor contract must be signed and approved by the Chairperson. A minimum grade of C is required for courses to satisfy these requirements.

Music Courses

102. Introduction to World Music. A select study of the world’s musical traditions from regions in Africa, the Americas, and the Near and Far East. Through listening and class discussion, students will become familiar with various forms of music making in their historical and cultural contexts. (Cr. 3)

129. *Beginning Vocal Instruction. The elements of vocal production, breathing, control and proper placement of the human voice. May be repeated or combined with ART 130 for a maximum of three credits. (Cr. 1)

130. *Advanced Vocal Instruction. Continuation of ART 129. Study of more advanced vocal literature. May be repeated or combined with ART 129 for a maximum of three credits. Prerequisite: ART 129 or permission of instructor. (Cr. 1)
131. *The Manhattan College Singers.* The study and performance of works for mixed vocal ensemble. A public concert is given each term. The student must attend all rehearsals, sectionals, and the final performance for credit. Two hours a week. (Cr. 1)

132. *The Manhattan College Orchestra.* The study and performance of works for string and wind orchestra. May be repeated for credit. A public concert is given each term. A short audition is required. The student must attend all rehearsals, sectionals, and the final performance for credit. Two hours a week. (Cr. 1)

133. *The Manhattan College Jazz Band.* The study and performance of works for jazz ensemble. May be repeated for credit. A public concert is given each term. The student must attend all rehearsals, sectionals, and the final performance for credit. Two hours a week. (Cr. 1)

*Students may not exceed three credits total in any combination of ART 129, 130, 131, 132, or 133.*

208. Piano-MIDI Workshop. A course for those with much, little, or no previous experience, designed to promote the understanding of different styles of music through the study of the piano. The course includes instruction in piano technique, music composition, and MIDI software (e.g., ProTools and Finale) and hardware (e.g., recording equipment, synthesizers, and soundboards). No prior background in computing is necessary. (Cr. 3)

209. Guitar-MIDI Workshop. A course for those with much, little, or no previous experience, designed to promote the understanding of different styles of music through the study of the guitar. The course includes instruction in guitar technique, music composition, and MIDI software (e.g., ProTools and Finale) and hardware (e.g., recording equipment, synthesizers, and soundboards). No prior background in computing is necessary. Students are required to provide their own guitar. (Cr. 3)

220. The Fundamentals of Music Theory. A study of the rudiments of music and the basic principles of harmony. Topics include rhythm, musical notation, scales, key signatures, intervals, triads, seventh chords, harmonic function, harmonic progression, and elementary counterpoint. Activities include simple composition, harmonization, analysis, ear-training, and dictation drills. (Cr. 3)

300. History of Rock & Roll. Presents a thoughtful approach to the appreciation and understanding of the history of rock and roll. Students are introduced to a variety of factors that influenced the creation of this music including historical, social, philosophical, and aesthetic influences. The musician’s intent, working conditions and biographical factors will also be discussed as they pertain to the creative process. Students will reinforce and expand their analytical skills by reading about and discussing the various styles of music combined to create rock and roll, including blues, country, bluegrass, and gospel music. (Cr. 3)

310. History of the Broadway Musical. Presents the history of the Broadway musical within the larger context of staged musical productions, from the beginnings of operetta to the current trends on Broadway today. The primary focus of study is the development of musical theater in New York City and its implications for the genre worldwide. Students will learn about various musical and theatrical concepts, as well as the political and socio-economic concerns of the Broadway musical of the past and of today. The opportunity for field study will be encouraged through backstage tours, attendance to current productions on Broadway, and lecture presentations at various theaters or other relevant locations in the city. (Cr. 3)

330. History of Jazz. This course investigates the evolution of jazz from its origins in late 19th-century New Orleans to its present-day manifestation as an international musical idiom. With emphasis on contextualization, specific focus is directed to the diverse but interconnected issues of race, culture, politics, commerce, and technology. Equal focus is directed to the music itself. Through the practice of critical listening, students will be conditioned to recognize various jazz styles and their constituent (musical) parts related to rhythm, improvisation, harmony, form, and instrumentation. (Cr. 3)
390. Digital Audio Recording and Editing. See Digital Media/Studio Art.

400. Special Topics in Music. An intensive study of a single composer, genre, period, culture, or issue facing music scholarship today. The subject studied will vary from semester to semester. Previous Special Topics courses include “History of Opera,” “Popular Music Criticism and Journalism,” “Issues in Contemporary Popular Music,” “Music and Romanticism,” “Psychology of Music,” “Gender and Sexuality in Popular Music,” and “Music of the Latin Caribbean.” (Cr. 3)

410. Independent Study. Individual study of a major composer or an aesthetic issue facing music scholarship today with a member of the department. Open only to students who secure the approval of the Chair of the Department and the consent of the individual instructor. A student may elect this course only once for credit towards the Minor in Music. (Cr. 3)

Art History Courses

120. Monuments and Masterpieces from the Non-Western World. A survey and analytical study of selected major architectural monuments and masterpieces of painting, sculpture, and photography from Asian, Middle Eastern, and African cultures. Monuments are placed within cultural and art historical contexts. (Cr. 3)

320. Ancient Art. History of art in the Western tradition from the Paleolithic Age (20,000 B.C.) to the 4th century A.D. Examines the development of civilization in the Near East, Egypt, the early Aegean cultures, the emergence of Greek art, from the Bronze age through the Hellenistic period; and explores the rise and expansion of the Roman Empire; and the period from the beginning of the Christian era to the rule of Emperor Constantine in the 4th-century A.D. A museum assignment requires a visit to the collections of the Metropolitan Museum of Art or the Brooklyn Museum. (Cr. 3)

321. Medieval Art. The history of art in the Middle Ages, beginning with Early Christian art and continuing through Late Gothic. A museum assignment requires a visit to the collections of the Metropolitan Museum of Art or the Brooklyn Museum. (Cr. 3)

322. Renaissance Art. This class begins with the early Renaissance in Florence, continues with the High Renaissance in Italy, and concludes with the Renaissance in the North. The basic concepts that distinguish the Renaissance from the Medieval period and modern times are discussed. Individual work is placed within the context of contemporary history, emphasizing humanism, the emerging individualism of the artist, the revival of interest in the ancient world, and the varied responses to the classical heritage. A museum assignment requires a visit to the collections of the Metropolitan Museum of Art or the Brooklyn Museum. (Cr. 3)

323. Revolutions in Art: 1750–1950. From its roots in the Enlightenment and French Revolution to its radical conclusion in the paintings of the Post-Impressionists, 19th-century art constantly challenged the status quo. This course will examine the innovations of the major artists and movements that led to the clash between an authoritative classicism and a refractory romanticism, the birth of landscape painting, the emergence of a subversive avant-garde, and the development of a radical new painting that became the foundation of modern art. The focus will be on how artists as diverse as David, Goya, Turner, Daumier, Courbet, Monet, Cezanne, van Gogh, and Munch developed new visions in response to the century's political, social, and technological upheaval, including the rise of Napoleon, urbanization and the modernization of Paris, empirical scientific discoveries, the challenge to bourgeois values, and the exploration of the human psyche by Sigmund Freud. Emphasis is on the mainstream historical movements in art history, including Neoclassicism, Romanticism, Realism, Impressionism, and Post-Impressionism. (Cr. 3)

360. New York City Architecture, Urbanism & Design. From the Federal-style row house to the modern skyscraper, New York’s architectural heritage is compelling. This course is an introduction to the philosophy and
the socio-economic/political forces that have shaped our city. Using the city as a classroom, students experience architecture and the urban environment – look, touch, discuss, question. Classes take place on site, at various Manhattan locations. (Cr. 3)

402. Special Topics in Art. An intensive study of a single artist, genre, period, culture, or issue facing visual art scholarship today. The subject studied will vary from semester to semester. A student may elect this course as often as four times for the art history minor, presuming a different subject each time. Offered every semester. Previous special topic courses include “History of Photography,” “Art Between the World Wars,” “History of Modern Art,” “History of Fashion,” and “Video Editing and Production.” (Cr. 3)

403. American Art. Examines American painting, sculpture, architecture, graphic art and selected decorative arts from the colonial period to 1970. Special emphasis is on correspondences and parallels with European culture, the unique characteristics of American realism, and the social and political contexts. Topics include the emergence of American art, 1760-1840; the American Romantic tradition as seen in the Hudson River School and Luminism; the insurgent Realists of The Ashcan School; the pioneers of American Modernism; and the Abstract Expressionists. Artists and architects discussed include West, Copley, Jefferson, Cole, Durand, Powers, Church, Homer, Eakins, Whistler, Cassatt, Moran, Sullivan, Wright, Tanner, Hopper, Bearden, Lawrence, Stieglitz, O’Keeffe, Pollock, Rothko, Poussette-Dart and others. (Cr. 3)

404. The New York Skyscraper. An introduction to the art of building, concentrating on the skyscraper in New York City, and dealing only with such earlier work as relates to its background and development. Attention is given to planning, style, and engineering. The course features lectures, tours, and visits to studios. (Cr. 3)

412. Independent Study. Individual study of a major artist, architect, or aesthetical issue facing art history scholarship today with a member of the department. Open only to students who secure the approval of the Chair of the Department and the consent of the individual instructor. A student may elect this course only once for credit towards the Minor in Art History. (Cr. 3)

435. Current Trends. A course to introduce the student to the current New York Art Scene. There will be visits to galleries, studios, museums and performance spaces. (Cr. 3)

Digital Media/Studio Art Courses

212. Art of Digital Photography. This course focuses on the creation of conceptually oriented digital prints, the history and aesthetics of digital art, and a thorough understanding of Photoshop, color management, digital cameras, and ink jet printing. There will be extensive instruction of Adobe Photoshop CS and the Epson 4000 professional-grade ink jet printer, which will facilitate the creation of digital prints. In addition to weekly discussions there will be tri-weekly critiques of the work produced that will scrutinize the student’s objectives, intentions, conceptual ideas, and technical skill. Materials fee: $50. (Cr. 3)

213. Digital Drawing. A beginning class in drawing designed to introduce students to a wide variety of skills and experiences ranging from still-life, portraiture, perspective and shading to the dynamic use of the figure, as in drawing choreography, all within a Macintosh-computer environment. Students will be given a Wacom digital sketch pad to be used throughout the course of the semester. (Cr. 3)

214. Introduction to Graphic Design. This course facilitates your understanding of and participation in the process of making graphic design from the initial choice of a topic through the working stages to the finished presentation. We will learn to use Adobe Photoshop and Adobe Illustrator computer programs. General knowledge of the PC-based Windows operating system is required. Some minor visual arts knowledge is highly recommended. Materials fee: $50. (Cr. 3)
390. Digital Audio Recording and Editing.
This course covers a number of topics relevant to music and digital technology. Though a thorough knowledge of music is not a prerequisite, this course is geared towards gaining familiarity with the language of music editing, recording, and production. While ProTools will be the main software for recording musical and other sonic schemes, the scope of this class will include working with Reason (a virtual synthesis program), Finale (music notation software), and GarageBand. Students will have access to Apple MacIntels and DigiDesign Mbox2 Sound Modules. (Cr. 3)

ARABIC (ARAB)

See page 280.

CHINESE (CHIN)

See page 280.

FRENCH (FREN)

See page 281.

GERMAN (GERM)

See page 282.

GLOBAL BUSINESS STUDIES (GLBL)

Assistant Professor Alfred R. Manduley
Director of the Program

This program seeks to develop in the student a thorough and rigorous global perspective and understanding of the international environment and markets. Such understanding is essential for any American business person who competes domestically and in the international arena. This field is interdisciplinary in nature and includes studies in economics, finance, marketing, management and government. Students who are interested in pursuing careers in the international phase of business or government may pursue it only as a second major. Proficiency in a foreign language is strongly recommended.

Required Courses: MGMT 309, ECON 334, MKTG 412 and 6 credits from the following: ECON 421, FIN 436, GLBL 470, MKTG 414, GOVT 309-330-351-357. (No more than three elective credits may be taken from any one discipline).

MGMT 309. Management of International Business. The objective of this course is to develop an understanding of the management issues associated with the development, environment, operations and growth of multinational enterprises. The impacts of the various aspects of international business are examined from the perspectives of the firm and the investing and host countries. Prerequisite: MGMT 201. (Cr. 3)

ECON 334. International Economics. A study of international trade and financial relationships. Topics covered include theory of international trade, public and private barriers to trade, commercial policy of the U.S., regional economic integration, foreign exchange market, balance of payments, disequilibrium and the adjustment process, international monetary systems, and economic development of the developing nations. Prerequisites: ECON 201, 202. (Cr. 3)

MKTG 412. International Marketing. Selecting and entering global markets, as well as building and protecting market share are viewed in light of significant economic, cultural, and political-legal differences. Prerequisite: MKTG 201. (Cr. 3)

Electives

ECON 335. Political Economy. This course deals with determinants of economic growth and development from a global perspective. The political and legal environment will be given attention alongside economic factors. Issues facing transitional and developing economies will be given special focus. Prerequisites: ECON 201, 202. (Cr. 3)

ECON 421. The Japanese Economy. An interdisciplinary study of the important features of the Japanese economy including culture, management, economic organization, distinctive institutions and industrial policy; how these
compare to the U.S., and how these have contributed to Japan’s economic success. The course also considers Japan’s evolving economic relationship with the U.S. and why Japan’s economic performance has deteriorated in recent years.

**Prerequisites:** ECON 201, 202. (Cr. 3)

**FIN 436. Multinational Finance.** An exploration and analysis of the behavior of multinational firms. Topics covered include the impact and management of foreign exchange risk, nature and mechanics of the foreign exchange market, foreign project evaluation, direct and portfolio investments, accounting exposures, balance of payments and trade accounts, and the legal and political risks and constraints surrounding multinational corporations.

**Prerequisite:** FIN 301, FIN 302. (Cr. 3)

**MKTG 414. International Field Study Seminar.** A program designed to access the impact of the foreign environment on the international firm. Seminars will be conducted at home and abroad. Students will visit selected companies in a foreign country in January. (Participants are responsible for the cost of travel, lodging, meals and miscellaneous expenses.) Open to students approved by the instructor. (Cr. 3)

**GOVT 309. Comparative Politics.** A survey of the institutions, processes and major problems of selected governments in contemporary states. The structures and ideologies of different regimes, the relationship of the individual to the state, and the adaptation of systems to changing conditions will be compared. (Cr. 3)

**GOVT 330. Government and Politics of Western Europe.** A comparative analysis of political institutions and events in Britain, France, Germany, and other selected Western European Union states, and an examination of their increasing integration through the European union. (Cr. 3)

**GOVT 351. International Relations.** Analysis of various factors underlying war, peace, diplomacy, economic policy and other means by which international actors conduct their relations with one another. (Cr. 3)

**GOVT 357. United States Foreign Policy.** Ideology, decision-making processes, instruments and major issues of contemporary United States foreign policy. (Cr. 3)

**GLBL 470. International Business Tutorial/Independent Study.** A program of supervised reading and research under the direction of a member of the Department. Topics and methods of research are to be developed in consultation with the supervising professor. Open to qualified students who meet the departmental requirements and have the approval of the Department Chair and the Dean. (Cr. 3)

**GOVERNMENT (GOVT)**

Dr. Winsome A. Downie

Chair of the Department

The government (political science) major seeks to maximize students’ ability to analyze and interpret the significance of political events, institutions, behavior, and governmental processes at the local, national and international levels. The major is designed to equip students to play more effective roles as citizens of a democratic nation and of the world and to prepare them for careers in public service, diplomacy, law, business, journalism, and college teaching.

**Requirements for a Major.** LLRN 121 or GOVT 201 are prerequisites for the Government major. In addition, majors then must take a total of ten courses that include GOVT 203 and 309 early in the process; one 300-level course from each of these five major areas: 1) US government, either 303, 306, or 320; 2) comparative governments of Europe; 3) comparative government of any other world region; 4) international politics, either 351, 352, or 357; 5) political theory; and one 400-level seminar course. A minimum grade of C in departmental courses is necessary to fulfill the requirements for the major. Majors intending to apply to law school are expected to take at least one term of GOVT 323 or 324, Constitutional Law. Students intending to go to graduate school in political science should take GOVT 210, Scope and Methods or Sociology 307, Survey Research.
Requirements for a Minor. The minor is available to students in all schools. LLRN 121 or GOVT 201 is required for the Government minor. Students are required to take 12 additional credits, including GOVT 203, 309 and two other government courses, and receive a grade of C or better in each. Majors and minors are advised to start with the required LLRN 121 or GOVT 201, then to take 203 and 309 before selecting other courses.

Requirements for a Major Concentration in the School of Education. Students concentrating in Government must take a total of eight courses, including 201, 203, 309, and any other five courses. Students who have taken LLRN 121 should select another Government course in place of GOVT 201. A minimum grade of C in departmental courses is necessary to fulfill the requirements for the major concentration.

201. Introduction to Government and Politics. An introduction to salient concepts in political science. Students will also investigate the logic and methods of political science research and will analyze contemporary social issues from the perspective of the discipline of political science. Those who have completed the LLRN 121 social science core course are not permitted to take GOVT 201. (Cr. 3)

205. Political Geography. A study of states and other political units in the context of their physical, human, economic, cultural, strategic, and other features that are relevant to power and ultimately the course of history. (Cr. 3)

207. Introduction to Peace Studies. This course is intended to introduce the student to the nature, scope, and methodology of Peace Studies as well as explore some major contemporary problems that threaten peaceful and just relations between individuals, groups, or nations. (Cr. 3)

210. Scope and Methods of Political Science. Contemporary orientations and scientific concepts in political inquiry; student research using modern techniques. (Cr. 3)

251. Global Issues. This course highlights the interrelatedness of political, economic, ecological, and cultural events as they affect nations, regions, and the global community. The course is designed to illuminate the complex nature of world events and the nature of international studies. (Cr. 3)

United States Government

203. United States Government and Politics. An introductory course about the foundation of the U.S. Government, its institutions and how they work, and how individuals, political parties, interest groups, corporations participate in the political process leading to public policy formulation and implementation. (Cr. 3)

303. The United States Congress. Analysis of the dynamics, organization and policy-making processes of the United States Congress: The relationship of legislators to constituents, lobbyists, bureaucrats, and the Executive and Judicial branches of the Federal government. (Cr. 3)

306. The United States Presidency. Exploration of the institution of the U.S. Presidency — its powers, paradoxes, limitations and responsibilities. Analysis of the Presidential selection process, as well as examination of Presidential leadership in domestic and foreign policy arenas. (Cr. 3)

315. State and Local Government in the United States of America. The history and development of federalism in the United States political system, with emphasis on contemporary state and local political institutions and public policy issues. Governmental structures and processes are considered in relation to policy outcomes. (Cr. 3)

319. Government and Business: Political Economy. A survey of alternative economic ideologies, the private and public sectors, the interplay between them, and the formulation of economic public policy. (Cr. 3)

320. United States Parties, Public Opinion and Voting Behavior. Analysis of the development, organization, and functions of political parties in the United States; the relationship of parties to public opinion, elections, and voter behavior. (Cr. 3)
321. Urban Government and Politics. Examination of government and politics in major United States cities and suburbs. Impact of urban political, economic and social elites, labor, ethnic and racial groups, state and federal governments on urban politics and public policy. Analysis of selected metropolitan problems. (Cr. 3)

322. Public Administration. The role of bureaucracy in carrying out public policy. The examination of administrative processes with special emphasis on administrative behavior and decision-making. (Cr. 3)

323. Constitutional Law: Governmental Powers. Case studies of Supreme Court decisions relating to the powers of the national government and the separate branches; judicial review; federal-state relations; as well as the commerce, taxing, spending, treaty-making and war powers. (Cr. 3)

324. Constitutional Law: Civil Liberties. Case studies of judicial decisions on the rights of individuals; first amendment freedoms, equal protection of the laws, rights of defendants. (Cr. 3)

325. Special Topics: United States Government. An extensive examination and analysis of salient issues that require government/public policy action. (Cr. 3)

326. Seminar: The Politics of Race, Ethnicity and Class in the United States. Analysis of Indian genocide, African enslavement, social annihilation, white supremacist ideologies, racism and economic inequality. A study of leaders and mass movements that pushed United States’ society and its political institutions in the direction of greater racial, ethnic, and class equality and justice. (Cr. 3)

Comparative Politics

309. Comparative Politics. A survey selected Western industrialized democracies, former Communist states and countries of the global South (third World). Globalization’s impact, including economic dependence and neoliberalism, global terrorism and citizen’s response to new dimensions of domination. (Cr. 3)

310. Special Topics: Comparative Politics. Examination and analysis of salient issues in comparative politics and public policy. (Cr. 3)

330. Government and Politics of Western Europe. A comparative analysis of political institutions and events in Britain, France, Germany, and other West European states, and an examination of their increasing integration through the European Union. (Cr. 3)

331. Government and Politics of Russia and Selected Soviet Successor States. Development, structure and functions of Soviet political institutions, with special attention to the role of the Communist Party. Glasnost, perestroika and the disintegration of the U.S.S.R. The new successor republics. (Cr. 3)

332. Government and Politics of Central and Eastern Europe. This course explores the remarkable changes in the region from the end of World War II, through the Soviet socialist regimes, to the startling movements for change in 1989, to the still young nations of today. (Cr. 3)

405. Special Topic Seminar: United States Government and Politics. An in-depth exploration of a specific political issue through class discussion and student research papers and in-class presentations. Open to upper class students. (Cr. 3)

412. Seminar: Women in Politics. The struggles of nineteenth-century feminists, the suffrage amendment movement and the contemporary women’s movement as political action. Urban/metropolitan women as vanguard of the mid-twentieth century (Third Wave) American women’s movement. Cross-cultural, cross-national comparisons of the concern that mobilize women, their attainment of political power, and the impact of their activities on public policy. (Cr. 3)

426. Seminar: The Politics of Race, Ethnicity and Class in the United States. Analysis of Indian genocide, African enslavement, social annihilation, white supremacist ideologies, racism and economic inequality. A study of leaders and mass movements that pushed United States’ society and its political institutions in the direction of greater racial, ethnic, and class equality and justice. (Cr. 3)

340. Government and Politics of Asia. The politics of the leaders, the institutions in which they operate, and the impact their policies have on their citizens as well as the whole Pacific Basin. Particular attention will be paid to China, Japan, Vietnam, Indonesia, and India. (Cr. 3)
343. Government and Politics of the Middle East. Comparative study of the political, economic, and social systems of the Middle East. Discussion of issues such as nationalism, religion, and politics in selected countries. (Cr. 3)

344. Government and Politics of the Caribbean. Comparative study of the political, economic, and social systems of the Caribbean. Discussion of issues such as nationalism, religion, and politics in selected countries. (Cr. 3)

345. Government and Politics of Latin America. Comparative study of the political, economic, and social systems of Latin America. Discussion of issues such as nationalism, religion, and politics in selected countries. (Cr. 3)

346. Government and Politics of Africa. Comparative study of the political, economic, and social systems of Africa. Discussion of issues such as nationalism, religion, and politics in selected countries. (Cr. 3)

348. Government and Politics of the European Union. The evolution of the institutions and policies of the European Union. Discussion of issues such as nationalism, religion, and politics in selected countries. (Cr. 3)

430. Special Topics Seminar: Comparative Politics. An in-depth exploration of a specific political/public policy issue in Comparative Politics through class discussion and student research papers and in-class presentations. Open to Juniors and Seniors. (Cr. 3)

440. Seminar: European Politics. The seminar focuses on the government and politics in a selected European country. (Cr. 3)

Global Politics

223. Environmental Politics. Analysis of US and global environmental politics and major issues involved in ecological sustainability and development, including resource management, pollution control and climate change. (Cr. 3)

350. Special Topics: Global Politics. An extensive examination and analysis of salient issues in global politics that require domestic and global public policy action. (Cr. 3)

351. International Relations. Analysis of various factors underlying war, peace, diplomacy, economic policy and other means by which international actors conduct their relations with one another. (Cr. 3)

352. International Organizations. The nature, functions, operations and politics of the United Nations, and global, regional or specialized international bodies. (Cr. 3)

353. Technology and Society. How gadgets and techniques, hardware and software, interact with people for better and occasionally for worse, and how governments consider difficult trade-offs in their policy-making. (Cr. 3)

357. United States Foreign Policy. Ideology, decision-making processes, instruments and major issues of contemporary United States foreign policy. (Cr. 3)

420. Seminar: Conflict Resolution. Analysis of sources of conflict and study of methods of conflict management and resolution at the interpersonal, neighborhood, national and international levels. (Cr. 3)
450. Seminar: Politics of International Economics. The interface of governmental authority and politics on the one hand and economics on the other and the outcomes of this relationship in a global political economy and the management of economic change. (Cr. 3)

452. Special Topics Seminar: Global Politics. An in-depth exploration of a specific global issue through class discussion and student research papers and in-class presentations. Open to Juniors and Seniors. (Cr. 3)

455. Seminar: Diplomacy. Survey of development and practices of diplomacy through investigation of negotiation, coercion, crisis, management, diplomatic settlement, and security cooperation among states. (Cr. 3)

Political Theory

370. Special Topics: Political Theory. An extensive examination and analysis of salient political thinkers and the impact of their ideas on contemporary political systems. (Cr. 3)

371. United States Political Thought. Analysis from original sources of major United States political and constitutional writers from colonial times to the present. (Cr. 3)

374. Western Political Thought. Introduction to modern Western political theory through an examination of the written dialogue (between philosophers) that has contributed to what we know as the canon on craft and society in the West. (Cr. 3)

473. Seminar: Contemporary Western Political Thought. Examination of the major political thinkers who have contributed to the notion of statecraft in the West since WW II. (Cr. 3)

480. Special Topics Seminar: Political Theory. An in-depth exploration of specific political thinkers including non-Western philosophers through class discussion and student research papers and in-class presentations. Open to upper class students. (Cr. 3)

Special Programs

212. Wall Street. The interactions among the world’s investors, investment institutions, and various self-regulatory bodies involved in the capital markets. Stocks, bonds, mutual funds, hedge funds, derivatives, and many other investment instruments as well as psychological mindsets directing the markets will be investigated. The instructional part of the course will be relieved by field trips for practical, on-the-scene insights into Wall Street operations, employment possibilities, and the stock market’s role in everyone’s life. (Cr. 3)

222. Power in the City. Significant buildings and public works are used as historical case studies of personal, interest group, economic or political power in the development of the city. Students must be prepared to walk about five miles over several hours, rain or shine. (Cr. 3)

448. Internship. A learning opportunity that combines practical experience, reflection, and writing. Normally available to students who have already taken COOP 402 or 403. A student must apply to the department chair for preliminary approval of a placement with a statement of academic goals, a description of practical activities proposed, and a plan for supervision and evaluation of a written report. Final approval is conditioned on confirmation of placement with the internship setting. (Cr. 3)

457, 458. Model United Nations. A hands-on, participatory experience in which students acquire expertise on a particular country which they represent at the five-day National Model United Nations Conference in New York City. The UN simulation is designed to reinforce an understanding of the basic principles of the world organization, such as maintaining international peace and security, developing better relations among nations based on respect, equal rights and self-determination of peoples and the adjustment and settlement of international disputes. Prerequisite: GOVT 352 and/or permission of the instructor. (Cr. 3)
**490. The Albany Session Internship.**
Sponsored by the New York State Assembly or Senate. The NY State Legislature semester internship enables students to participate in state government. It includes practical research and administrative experience and two courses on Legislative Politics and Conflict Resolution. Grades are pass/fail. Permission of the department chair and Dean required. Deadline for application is in October. (Cr. 12)

**491, 493. Washington Center Semester.**
Students intern four days a week in Washington, D.C., take an evening course, attend lectures, participate in field trips and other activities organized by The Washington Center (www.twc.edu). Programs include: Americas Leaders, Congressional Leadership, International Affairs, Law and Criminal Justice, Nonprofit Leaders and several more. Students register for 491 (Washington Center Course), 493 (Washington Center Portfolio), and 6 COOP internship credits. Students wishing to earn 15 credits may take an additional course. Permission of the department chair and Dean required. (Cr. 12-15)


**449. Independent Study.** Individual research and readings under faculty supervision. Permission of the department chair and Dean required. (Cr. 3)

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**HISTORY (HIST)**

Dr. Claire E. Nolte  
*Chair of the Department*

A history major can be an ideal choice for a variety of careers. In addition to preparing students to be professional historians or researchers, it lays the foundation for professions such as law or teaching, as well as business, public service, the military, and the media.

**Requirements for a Major in History.**
Students in the School of Arts who major in history must complete a minimum of thirty credits in history courses. These credits must include HIST 200, 210, 217, 490. The remaining courses must be at the 300 level or above, and must include six credits in European history and three credits in world history. A minimum grade of C is necessary to receive credit in the major. Students are encouraged to pursue opportunities for study abroad. In addition, internships in a wide variety of fields are available for history majors.

Students in the School of Education who major in Social Studies must complete twenty-seven credits in history courses if they specialize in Adolescent Education, and twenty-four credits if they specialize in Childhood Education. These credits must include HIST 206, 207, 217, 218 and three credits at the 300 level in world history. In addition, Adolescent Education majors must complete HIST 200 and 490. Education majors are strongly encouraged to take at least an additional three credits at the 300 level in American history. A minimum grade of C is necessary to receive credit in the major.

**Requirements for a Minor in History.**
Fifteen credits of history courses, with most at the 300 level or above. The program is worked out individually with the department chair. A minimum grade of C is required to receive credit in the minor.

All history majors and minors are invited to participate in the social, co-curricular, and vocational activities of the department. The department houses a chapter Phi Alpha Theta, the national history honor society. Outstanding history majors are elected to its membership. In
addition, the department has two lecture series honoring the memory of past department chairs. An annual lecture in honor of Brother Casimir Gabriel Costello, F.S.C. features European history, and a biennial series focuses on topics in early American history in honor of Professor Robert Christen.

Basic Courses

200. Introduction to the Study of History.
This course introduces students to the discipline of history. An overview of historical writing will contribute to an understanding of how the craft of history is practiced and has evolved. Class assignments will develop and strengthen techniques of historical research, information literacy, and writing skills. Intended for history and social studies majors during the first or second semester of their major course work, this course is open to others with permission of the instructor. (Cr. 3)

204. History of the Ancient World.
This course examines the development, spread, and transformation of empires in the Mediterranean world during antiquity. Special emphasis will be on the poleis of Greece, the Hellenistic World, and the Roman Republic and Empire. (Cr. 3)

206. United States through 1876.
The United States, from its origins through the Civil War and Reconstruction, with an emphasis on the main political, economic, and social developments. Major wars and cultural trends will also be addressed, as well as the lives of important and representative individuals. (Cr. 3)

207. United States Since 1876.
The United States since the end of Reconstruction, with an emphasis on the major political, economic, and social developments. Major wars and cultural trends will also be addressed, as well as the lives of important and representative individuals. (Cr. 3)

An examination of selected critical issues and events in American history. (Cr. 3)

217. World History to 1600.
This course surveys the history of civilization before the seventeenth century. Focus will be on the developments of world cultures in Europe, South and East Asia, the Middle East, and Africa, as well as encounters between these regions. Topics will include the growth of cities, court culture, and the agricultural economies that supported them; global trade networks; spread of disease; religious movements; and military conflicts. (Cr. 3)

218. World History since 1600.
This course surveys the history of the world from the European encounter with the non-Western world to the present day. It will explore the major trends which have shaped the modern world, including the rise of modern states; the revolutionary era; the ideologies of socialism, liberalism, and nationalism; European imperialism, and the shifting balance of power in the postcolonial world. (Cr. 3)

This course on the rise of the American economy from the colonial period to the present will go beyond economic history to examine issues of politics, philosophy, and legal theory and their impact on economic developments. Special emphasis will be given to advancements in science and technology, the creation of educational systems, and the links between global economic conditions and the economy of the nation-state. The course will highlight themes of continuity and change that have characterized American economic history. (Cr. 3)

American History

347. The Sixties.
This important, contentious era will be examined from different angles, from the various protest movements to the conservative reaction, from music and cultural flowering to presidential politics. All of this will be analyzed in relation to the various historical interpretations of the era. (Cr. 3)

360. Women in the United States.
This course will focus on the changing roles of women in American society from the 17th century to the present. Beginning with pre-industrial society and tracing women's experiences in agricultural, commercial, industrial, and post-
industrial America, we will discover how women’s roles have changed—and not changed—in the course of American history. In an historical context, the various experiences of women as housewives, mothers, consumers, workers, professionals, and citizens will be analyzed. (Cr. 3)

362. U.S. Foreign Relations, 1900 to the Present. “The American Century.” The rise of America to world power. Relations with other countries before, during, and between the world wars, in the Cold War, and in the post-Soviet era, including politics toward Latin America, the Middle East, Africa, and Asia. (Cr. 3)

371. The American West. A survey of the region that has long captured people’s imagination. Enduring themes such as cowboys and Indians as well as newer concerns such as the role of women and the rise of technology will be analyzed in light of historical evidence, both primary and secondary. (Cr. 3)

380. Sport and American Society. An interdisciplinary course on the history of American sport from the colonial era to the present. Special emphasis will be given to the economic, sociological, political, and psychological aspects of twentieth century American sport. (Cr. 3)

381. Colonial and Revolutionary America to 1789. The political, economic, social, and cultural status of the British-American colonies in the mid-eighteenth century; the coming of the American Revolution; the problems of war and independence; the constitutional development of the new nation; the impact of the Revolution on all of the American people. (Cr. 3)

383. The Civil War and Reconstruction. The causes of the Civil War: economic and political, legal and constitutional, ideological and moral. The great people, the great battles, and the great events. The results and the cost of the war, human and economic. Reconstruction, racism and segregation. (Cr. 3)

385. Modern America, 1930 to the Present. The nation’s domestic, political, social, and economic issues from the Great Depression of the 1930s to terrorism in 2001. The New Deal and the Fair Deal, the Home Front in World War II, Civil Rights and the Great Society, consensus in the 1950s and conflicts in the 1960s, the domestic cost of Vietnam, Watergate, and Reagonomics, the Information Revolution and the Clinton Paradox. (Cr. 3)

386. American Biography. Analysis of signal figures of both genders and a variety of racial/ethnic backgrounds from different eras and fields, from business leaders and inventors to labor leaders and social reformers, from presidents to creative artists. Perennial questions that will be addressed include what constitutes a significant life and the relative roles in a life of one’s personality and choices – and of fate – along with such structural factors as one’s race, class, gender, geographic region and particular generation. Various biographical schools of thought will also be addressed, along with variations on biography, notably autobiography and memoir. (Cr. 3)

387. New York City and the American Urban Experience. The colonial and Revolutionary city, urban imperialism, the city in the American mind, immigration, social mobility, the rise of the ghetto, the impact of the New Deal, suburbanization, the modern metropolis, recent trends. (Cr. 3)

European History

304. Europe in the Middle Ages. This course will explore the economic, social, and cultural history of Europe from the fifth through the fifteenth centuries. Major topics will include the transformation of the Roman Empire into Christendom; the development of the church with the rise of the papacy and monastic reform; Germanic migrations; consolidation of the medieval monarchy; the Commercial Revolution; scholasticism and the universities; pilgrimage and the cult of the saints; the crusades; heretical movements; and the medieval family. (Cr. 3)

305. Early Modern Europe. This course traces the transformation of Europe between the Renaissance and the French Revolution. Special emphasis will be placed on the wars of religion, the revolution in European military practice, the emergence of national states, the structure and functioning of the absolutist monarchies and, especially, the wide-ranging impact of the Enlightenment. (Cr. 3)
308. **European Women to 1500.** This course examines the history of women in Europe from the ancient period through the end of the Middle Ages. Emphasis will be on women's lives and experiences as well as representations of women constructed during the period. Course topics will include women's roles in religious communities, the family, the workforce, politics and portrayals of women in literary, legal, medical, and religious discussions. Special emphasis will be on women's perceptions of their social and cultural lives, described in their own words. (Cr. 3)

319. **The Crusades.** The course examines the crusading energy of the High Middle Ages. Focus will be on the medieval imagination of the Latin West as Christendom and attacks on threats to that identity. Topics will include the strengthening of the papacy; the growth of chivalry; the history of Jerusalem and its crucial holy sites; relations between Christendom and the Byzantine Empire; the Islamic world; the Reconquista; the Albigensian Crusade; the rise of anti-Semitism; and the military orders. (Cr. 3)

325. **The Byzantine Empire.** The political and cultural history of the Eastern Roman Empire from the fourth to the fifteenth centuries and its relations with Islam, the Latin West, and the Slavs. (Cr. 3)

337. **England to 1688.** An overview of the history of the British Isles from antiquity to the Glorious Revolution. The creation of England as a unified kingdom with a centralized monarchy and its influence over Wales, Scotland, and Ireland. Emphasis will be on the power and personalities of the monarch and the nobility as well as on the lives of ordinary people. Roman Britain, the Anglo-Saxon period, Norman conquest, Plantagenet Empire, Hundred Years War, Tudor and Stuart dynasties, Anglican Reformation, civil war, plague, constitutionalism, monasticism, and the universities. (Cr. 3)

351. **The Age of the French Revolution.** The course explores European history from the Enlightenment to the fall of Napoleon. The origins, course, and aftermath of the French Revolution will receive particular attention. Other themes include the Enlightenment, early industrialization, and the Napoleonic Empire. (Cr. 3)

352. **Nineteenth-Century Europe.** This course explores European history from the fall of Napoleon in 1815 to the start of World War I in 1914, with emphasis on the revolutions of 1830, 1848, and 1871, the acceleration of imperialism, nation-building, and the social transformation stemming from industrialization. (Cr. 3)

326. **Diplomatic History of Europe Since 1815.** The international relations among the European states from the Congress of Vienna through the era of Imperialism and the 20th century's two world wars. (Cr. 3)

342. **Ireland.** After an overview of medieval and early modern Irish history, attention focuses on the Act of Union, O'Connell, the great famine, Fenianism, home rule, Parnell, the Easter 1916 rebellion, constitutional development in South and North, the present situation. (Cr. 3)

353. **Modern Germany.** The influence exercised in German history of the medieval empire, Luther, the Thirty Years War, Frederick the Great, and the Age of Revolution. A chronological treatment from 1848 to the present. (Cr. 3)

354. **History of the Soviet Union.** The course deals with the background, revolution, and establishment of the Soviet Union, focusing on both domestic developments and the role of the Soviet Union in world affairs. Special attention is given to the problems of continuity and change in Soviet policy between 1917 and 1991. (Cr. 3)

355. **Eastern Europe in Modern Times.** A survey of the history of Eastern and Central Europe, the area between Germany and Russia, from the end of World War I until the present day. The countries of the region are examined both comparatively and individually to identify the economic, social, cultural, and national forces which have shaped their developments. (Cr. 3)

357. **Nazi Germany and the Holocaust.** This course explores the rise of the Nazis to power, their governance of Germany, their conquests, and their defeat. Special emphasis will be placed on the Nazis' treatment of various minorities. Their ideology and practical issues shaping the decisions and actions of both lead-
ers and ordinary Germans will be examined. The Holocaust will be situated throughout in its contemporary context and understood through the eyes of perpetrators, victims, survivors, and bystanders. (Cr. 3)

388. Women in Modern Europe. This course surveys the role of women in European society in the modern period. Special emphasis will be given to the articulation and evolution of the “women’s question” and the impact of industrialization, political revolution, and war on gender roles. Drawing on contemporary documents as well as secondary analyses, the course will provide a historical context for debates on women and gender that continue to the present day. (Cr. 3)

World History

307. Genocide and Racism. This course investigates the emergence of modern racism and its expression as genocide. In-depth examinations of the events in Armenia, Rwanda, Bosnia, East Timor, Cambodia, and Darfur complement an exploration of the German attempt to annihilate certain groups like the Jews during World War II. Recommended for Education majors to satisfy state education laws in New York and New Jersey that require the teaching of the Holocaust in all schools. (Cr. 3)

312. Modern China, 1839 to the Present. The modern transformation of China, its values and institutions, resulting from the impact of the West and revolution. (Cr. 3)

313. Vietnam to the Philippines. Political, social, economic change, and the kaleidoscope of outside intervention in modern Southeast Asia since the founding of Singapore in 1819. (Cr. 3)

314. Modern Africa. This course introduces the multiple histories, diverse cultures and complicated geography of modern Africa. Three areas: modern-day Algeria; Ghana; and South Africa will serve as case studies in order to place continent-wide trends in their local contexts and to explore key historical events and developments from a consistent perspective that will illustrate change over time. This course will also emphasize the dynamic role of Africans in the events and processes that have shaped modern Africa. (Cr. 3)

316. Hispanic America. An introduction to the main historical patterns in the Spanish-speaking regions of the Western Hemisphere, with attention to the major social economic, political and intellectual patterns, and with particular emphasis on the predominant civilizations/countries in each era. (Cr. 3)

318. Mexico, Central America and the Caribbean. Political, economic, and cultural developments of the region, including the history of relations with the U.S. (Cr. 3)

Special Topics

321 and 322. Special Topics in History. An extensive study of a theme, problem, movement, or era in history. (Cr. 3)

377. Science, Technology and Society in the Industrial Age. This course explores major developments in both science and technology from the perspective of their social impact. Particular emphasis will be placed on industrialization and how science and technology affect society as a whole. (Cr. 3)

390. Terror and Terrorism: The Uses of Political Violence. This course examines the major ideas and problems associated with terror and terrorism from the French Revolution to the present and considers the historical development and role of political violence both by and against the state in contemporary society. (Cr. 3)

490. Senior Seminar. An exploration of a specific historical theme through class discussion and student papers, with an emphasis on proper research methodologies and presentation. Intended for advanced history and social studies majors, but open to others with the permission of the instructor. Prerequisite: HIST 200 (Cr. 3)

498. Independent Study. Supervised reading and research. Permission of Department Chair required. (Cr. 3)

500. Honors Research in History. Independent research and reading under the direction of a member of the Department. Open to qualified majors with the permission of the Department Chair. (Cr. 3)
INTERNATIONAL STUDIES
(INTL)

Dr. Pamela Chasek
Director of the Program

International Studies is an interdisciplinary program founded on the premise that world events can only be understood by employing a variety of disciplinary perspectives, such as political, economic, historical, cultural, etc., and that they must be understood in both a regional and a global context. This interdisciplinary and international perspective will prepare students for graduate school or law school, or for careers in business, government, non-governmental organizations, or international organizations. Students who have specific graduate work or careers in mind may want to take a second major, or a minor, to further their program.

Requirements for a major in International Studies: All students shall 1) complete fifteen credits in the core curriculum (see below), 2) complete fifteen credits in the chosen area of concentration, and 3) acquire a satisfactory reading and speaking ability in at least one foreign language. Areas of concentration are Europe, Asia, Latin America and the Caribbean, Africa and the Middle East, and Global Issues. This last category focuses on transregional issues such as the environment, technology, ethnicity, and international organizations. The Department of Modern Foreign Languages offers courses in Arabic, French, Italian, Japanese, and Spanish. Russian is available through a cooperative program with Lehman College. International Studies majors should take 6 credits at the 200-level or above in any language, at a minimum. All International Studies majors are strongly encouraged to spend one or two semesters of their junior year abroad. A minimum grade of C is required in all courses used to fulfill the requirements for a major or minor in International Studies and for all courses taken abroad.

Requirements for a minor in International Studies: Students shall complete the 15 credits of the core International Studies requirements (see below). Students are encouraged to advance their linguistic competency. No area of concentration is required for a minor in International Studies.

Core Curriculum

INTL 201. Global Issues. This course highlights the interrelatedness of political, economic, ecological, and cultural events as they affect nations, regions, and the global community. The course is designed to illuminate the complex nature of world events and the nature of international studies. (Cr. 3)

INTL 405. Senior Seminar. A study of one specific international problem seen from the viewpoint of different disciplines. Student research and class discussions on the origins and nature of, and possible solutions to, the problem. Open to International Studies seniors and by permission of the Director. (Cr. 3)

ECON 334. International Economics. A study of international trade and financial relationships. Topics covered include theory of international trade, public and private barriers to trade, commercial policy of the U.S., regional economic integration, foreign exchange market, balance of payments, disequilibrium and the adjustment process, international monetary systems, the economic development of the developing nations. Prerequisite: ECON 202 or by permission of instructor. (Cr. 3)

GOVT 351. International Relations. Analysis of various factors underlying war, peace, diplomacy, economic policy and other means by which international actors conduct their relations with one another. (Cr. 3)

OR

GOVT 357. United States Foreign Policy. Ideology, decision-making processes, instruments and major issues of contemporary United States foreign policy. (Cr. 3)
GOVT 352. International Organizations. A study of the nature, functions, operations, and politics of the United Nations, and general, regional, or specialized international bodies. (Cr. 3)

HIST 326. Diplomatic History of Europe, since 1815. The international relations among the European states from the Congress of Vienna through the era of Imperialism and the 20th century's two World Wars. (Cr. 3)

OR

HIST 362. U.S. Foreign Relations, 1900 to the Present. "The American Century." The rise of America to world power. Relations with other countries before, during, and between the world wars, in the Cold War, and in the post-Soviet era, including politics toward Latin America, the Middle East, Africa, and Asia. (Cr. 3)

Area of Concentration

Students take 15 credits in their area of concentration, with no more than three courses, or 9 credits, in a single discipline. Special topics courses and Model United Nations courses may be included in concentrations, when relevant, and at the discretion of the Director. Courses for the concentration are chosen in consultation with the Director of the Program, including those listed below:

**Europe:** ART 323; ENGL 280, 346; FREN 340, 341; GOVT 330, 331, 332, 348, 374, 440, 473; HIST 307, 326, 342, 352, 353, 354, 355, 356, 388, 390; INTL 315; ITAL 303, 340, 341; PHIL 374; RELS 331; SPAN 303, 340; any 400-level Modern Foreign Language class.

**Latin America and Caribbean:** ENGL 265; FREN 342; GOVT 344, 345; HIST 316, 318; INTL 315; RELS 359, 436, SOC 328; SPAN 300, 303, 320, 341, 342; Any 400-level Spanish class.

**Africa and Middle East:** ARAB 101, 102; ENGL 265; FREN 341, 342; GOVT 343, 346; HIST 307, 314, 390; INTL 315; RELS 331, 353, 355, 436, 442.

**Asia:** ECON 421; ENGL 265; GOVT 340; HIST 307, 312, 313; INTL 315; JAPN 301, 302; PHIL 342; RELS 354, 355, 357, 358, 361, 436, 442.

Global Issues: ART 102 or 120; ECON 332, 335; ENGL 347, 348; GOVT 205, 207, 223, 309, 351, 352, 357, 420, 450, 452, 455, 457, 458; HIST 307, 362, 377, 390; INTL 310, 312, 315; PHIL 238; RELS 434, 436; SOC 317, 335.

International Studies Courses

(Open to Majors and Non-Majors)

INTL 310. Technology and Society. How gadgets and techniques, hardware and software, interact with people for better and occasionally for worse, and how governments consider difficult trade-offs in their policy-making. (Cr. 3)

INTL 312. Ethnicity in the Modern World. Study of several sub-national and trans-national ethnic and cultural movements. Their impact on local governments and international relations. (Cr. 3)

INTL 315. Special Topics in Area Studies. Course description will be announced when courses are offered. (Cr. 3)

INTL 450. Tutorial. A course of study for students with particular interdisciplinary research interests not covered in the college's offerings. Research under supervision of a faculty member. Written permission of the Director and the supervising professor has to be secured before registration. Majors only. (Cr. 3)

INTL 490. Internship. Participation in an off-campus work experience in an agency, organization, or corporation with international interests. Consultations with faculty advisor and written report. Permission of the Director of International Studies required. Majors only. (Cr. 3)

ITALIAN

See page 282.

LAW

See page 157.
LIBERAL LEARNING (LLRN)

Dr. Daniel F. Collins
Director of the Core Curriculum

The following courses comprise the core curriculum for students in the School of Arts and in the School of Science and are open only to those students. In keeping with the active learning goals of the program, all courses combine readings, discussions, and extensive writing assignments. LLRN 102, 203, 204, 205 and either 207 or 209 are required courses for all Arts and Sciences students. To fulfill the Social Science requirement, students in the School of Arts select three of the following and students in the School of Science select two of the following: LLRN 120, 121, 122, or 123.

102. Classical Origins of Western Culture.
A multi-disciplinary exploration of Greek and Roman contributions to the heritage of western culture. Students examine classical history, science, philosophy, literature, and fine arts. (Cr. 3)

120. Roots of Social Science: Economics.
An explanation and critical examination of selected concepts in the social sciences. Students examine the logic and methods of social science research and engage in analysis of contemporary social issues from the perspective of the discipline of economics. (Cr. 3)

121. Roots of Social Science: Government.
An explanation and critical examination of selected concepts in the social sciences. Students examine the logic and methods of social science research and engage in analysis of contemporary social issues from the perspective of the discipline of political science. (Not open to students who have completed GOVT 201.) (Cr. 3)

122. Roots of Social Science: Sociology.
An explanation and critical examination of selected concepts in the social sciences. Students examine the logic and methods of social science research and engage in analysis of contemporary social issues from the perspectives of the disciplines of sociology and anthropology. (Not open to students who have completed SOC 201.) (Cr. 3)

123. Roots of Social Science: Psychology.
An explanation and critical examination of selected concepts in the social sciences. Students examine the logic and methods of social science research and engage in analysis of contemporary social issues from the perspective of the discipline of psychology. (Not open to students who have completed PSYC 203.) (Cr. 3)

203. Roots of the Modern Age: History.
An intensive and critical examination of selected historical texts and developments from the medieval period to the present that contribute to an understanding of the modern world. (Cr. 3)

204. Roots of the Modern Age: Literature.
An intensive and critical examination of selected literary texts and developments from the medieval period to the present that contribute to an understanding of the modern world. (Cr. 3)

205. Roots of the Modern Age: Philosophy.
An intensive and critical examination of selected philosophical texts and developments from the medieval period to the present that contribute to an understanding of the modern world. (Cr. 3)

207. Roots of the Modern Age: Music.
An intensive and critical examination of major works of music from the medieval period to the present that contribute to an understanding of the modern world. (Cr. 3)

An intensive and critical examination of major works of art from the medieval period to the present that contribute to an understanding of the modern world. (Cr. 3)

300. Honors Seminar Special Topics.
Under the auspices of the Dean of Arts and the Coordinator of the Honor’s Enrichment Program. Course description will be announced when courses are offered. (Cr. 3)
MANAGEMENT AND MARKETING (MGMT/MKTG)

Dr. Michael Judiesch
Chair of the Department

The management program offers core courses required of all business students and a management major which is behaviorally oriented. All students are required to take MGMT 201, 307, 406 and 430. Management majors take MGMT 309, 415, 420, plus six credits of electives from the following courses: MGMT 304, 305, 308, 316, 441, 450, 460, 470 or MATH 425 (Operations Research). A minimum grade of C is necessary for credit in major courses. This department places particular focus on the social responsibilities of the business corporation as an institution and citizen of society and the management techniques required for successful organizational operations. The pivotal position of the executive in society is stressed in terms of his/her consideration of factors both external and internal to the firm.

MANAGEMENT (MGMT)

201. Introduction to Management. Develops understanding of management from historical, behavioral, theoretical and practical perspectives. Through a critical assessment of the classical and alternative approaches to the discipline, the student learns the essentials of leadership of contemporary enterprises in a global environment. Moreover, the student experiences a pragmatic employment of relevant communication skills both within and outside the classroom. (Cr. 3)

304. Management and Organizational Theory. Examination of the major aspects of organizational theory as evolved from traditional organization and management concepts. Emphasis is on the analysis of the organization as a socio-technical system. Spring. Prerequisite: MGMT 201. (Cr. 3)

305. Managerial Planning and Decision Making. Examination of major decisional areas with respect to establishment of goals and the determination of strategies. The dynamic conditions of uncertainty and risk characterizing the environment of modern organizations—both profit and non-profit. Critical evaluation of applicable concepts such as, optimization, decision rules, feedback, and cybernetics. Spring. Prerequisite: MGMT 201. (Cr. 3)

307. Operations and Quality Management. A study of the managerial functions involved in operations and quality management. Application of management and decision support quantitative techniques including PERT, CPM, linear programming, inventory control and scheduling systems, work standards, and quality control. Integration and use of modern computer software for controlling business operations within a context that includes total quality management requirements. Prerequisites: CIS 106, ECON 227. (Cr. 3)

308. Comparative and International Organizations. Explores the similarities and differences among organizations in diverse situations, industries, and countries. Types of comparisons include the study of organizations over time; of successful versus unsuccessful companies; of manufacturing versus service companies; of profit versus non-profit organizations; and of companies operating in different countries. Companies are compared in terms of their structures, strategies, systems, staff, style, skills and superordinate goals. The universality of contemporary management theories are considered. Fall. Prerequisite: MGMT 201. (Cr. 3)

309. Management of International Business. The objective of this course is to develop an understanding of the management issues associated with the development, environment, operations and growth of multinational enterprises. The impacts of the various aspects of international business are examined from the perspectives of the firm and the investing and host countries. Prerequisite: MGMT 201. (Cr. 3)

315. Human Behavior in the Organization. Individual and social behavioral processes and their relevance to managers. Behavioral sciences concepts and techniques for maximizing both the contribution of human resources toward organizational goals and the personal growth and fulfillment of organiza-
tional personnel. Fall. **Prerequisite:** MGMT 201. If you take this course, you cannot receive credit for PSYC 374.  

316. e-Management. This course is about formulating business strategy in the e-commerce area where transactions are conducted over the internet, and we will survey the various business models that have been introduced in the last few years and analyze their economic and managerial foundations. In addition, this course is designed to put participants in the role of strategic management consultants, in order to provide students with an understanding of the issues and strategic implications of electronic commerce; it is not designed to discuss technical implementation issues. We will investigate the many different facets of electronic commerce, the various business strategies, management issues, and pertinent technologies. **Prerequisite:** MGMT 201.  

320. Human Resource Management. The study of current human resource management practices and principles in the areas of equal employment opportunity, strategic human resource planning, selection, performance evaluation, training and development, compensation, health and safety, and labor relations. Spring. **Prerequisite:** MGMT 201. If you take this course, you cannot receive credit for PSYC 373.  

406. Strategic Management. An inter-disciplinary capstone course focusing on how managers analyze key environmental forces and then formulate, implement and evaluate strategies. Students use tools and techniques from Finance, Marketing, Production and Human Resources to devise future plans for companies. Various normative strategic planning models are considered and assessed. Small businesses, profit and non-profit firms, and multinational corporations are featured in case studies. **Prerequisite:** Business Seniors only.  

430. Business, Government and Society. Examines interactions between business, government and society in a changing global economy. Analyzes the role of government as an arbiter between business practices and society’s expectations and values. From the perspective of the firm, addresses corporate responsiveness to public concerns, business ethics and public issues management. Considers government regulation of product safety and quality; environmental protection and resource conservation; workforce diversity; workplace health and safety; and international trade and competitiveness. **Prerequisite:** Business Seniors only. 2004-2006.  

441. Small Business Management Seminar. Analysis of management of small business enterprises from feasibility to survival. Attention is given to the concept of entrepreneurship as well as to developing consulting skills. Through field work, in cooperation with the Small Business Administration of the Federal Government, student counseling teams provide assistance to the small business community under faculty supervision. Spring. **Prerequisite:** Business Seniors only.  

450. The Management of Behavioral Dynamics. Managerial implications of alternative methods for dealing with organizational confrontation, change, and inter- and intra-group conflict. Extensive experiential learning techniques utilized. Spring. **Prerequisite:** MGMT 415 or permission of instructor.(Cr. 3)  

460. Management Seminar. A program of supervised research and readings on problems of interest to the students. Open to a limited number of students who meet the departmental requirements and have the approval of the Chair of the Department.  

470. Management Tutorial/Independent Study. A program of supervised reading and research under the direction of a member of the Department. Topics and methods of research are to be developed in consultation with the supervising professor. Open to qualified students who meet the departmental requirements and have the approval of the Department Chair and the Dean.
MARKETING (MKTG)

Marketing represents both a key function and philosophy which provides a foundation for the successful operation of all businesses and non-profit organizations today. Marketing executives perform the essential tasks of planning the firm’s competitive market position and strategy, including the selection of the firm’s most effective “marketing mix” (firm’s product portfolio and advertising, pricing, and distribution strategies). All marketing majors take MKTG 303, 307, 403 and 412 plus 3 elective credits in Marketing. MKTG 201 is required of all students in Business. A minimum grade of C is necessary to receive credit in major and minor courses. Marketing majors may not take PSYC 305, Consumer Psychology. A working set of computer skills in PowerPoint, a statistical computer-based program, as well as some web development will be used in many of the marketing classes.

201. Essentials of Marketing. This course provides the student with an understanding of modern marketing practice, philosophy, advantage, marketing mix decisions, market segmentation, product positioning, buyer psychology and behavior, and new product development. Computer simulations and cases are used to demonstrate real-life applications. (Cr. 3)

303. Marketing Research. Develops knowledge and skills in designing research projects; developing experimental designs and research instruments such as interviews, questionnaires, and concept tests; implementing projects; and communicating research results and implications. Prerequisite: ECON 227. (Cr. 3)

304. Advertising and Communications Management. Students learn how marketers communicate to develop brand awareness, image, and distinctiveness, encourage buying behavior, and reinforce satisfaction. Promotional campaigns for actual products are created by determining budgets, setting objectives, targeting audiences, developing themes and messages, choosing media, and measuring results. Spring. (Cr. 3)

305. Direct Response Marketing. The managing of direct response advertising. The course focuses on using customer databases, testing customer response, and measuring efficiency of marketing methods that appeal for action from specified individuals. Spring. (Cr. 3)

307. Consumer Behavior. The course focuses on the major theories needed to understand buyer behavior, such as evoked set, brand loyalty, learning and memory functions, motivation, attitudes and attitude change, diffusion of innovations, perception and meaning, lifestyle and personality differences, culture and social class, and family buying influences. If you take this course, you cannot receive credit for PSYC 305. (Cr. 3)

308. Sales Management. An introduction to methods of sales management: selection, recruiting, selling strategies, training, territory management, compensation and motivation, and performance review. Spring. (Cr. 3)

311. Product Management. A review of the company’s product portfolio management, including the task of product positioning, product development, market development, product diversification and alternative strategies associated with the introduction, growth, maturity and decline stages of the product life cycle. Spring. (Cr. 3)

315. Retail Management. The study of modern retail practices, e.g. trading area analysis, economic quantity models, atmospherics, non-store retailing, target market selection, and competitive analysis. Fall. (Cr. 3)

316. e-Marketing. This course focuses on Internet marketing, new media marketing, and direct marketing. The primary emphasis is customer relationship interactions using all marketing tools. Some topics include virtual marketplaces, auctions, virtual communities, personalization, and personal privacy and security. Fall. (Cr. 3)

321. Contemporary Marketing Issues. A program of supervised research and readings on issues of interest to the students. (Cr. 3)
403. Marketing Management. This capstone course integrates previous marketing courses within a problem-solving framework. Students study marketing issues, strategies, plans, and implementation in a competitive environment. Required of senior marketing majors and open to senior marketing minors. 2002-2004. 
**Prerequisites:** MKTG 303 and MKTG 307. (Cr. 3)

412. International Marketing. Selecting and entering global markets, as well as building and protecting market share are viewed in light of significant economic, cultural, and political-legal differences. **Prerequisite:** MKTG 201. (Cr. 3)

413. Marketing Honors Seminar. A unique opportunity for students to do research on major marketing issues. Previous seminars have addressed the use of athletes in advertising, the acceptance of marketing activities in non-profit organizations, and consumer knowledge about the potential dangers of artificial sweeteners. Open only to selected students with the approval of the faculty mentor. (Cr. 3)

414. International Field Study Seminar. A program designed to assess the impact of the foreign environment on the international firm. Seminars will be conducted at home and abroad. Students will visit selected companies in a foreign country in January. (Participants are responsible for the cost of travel, lodging, meals and miscellaneous expenses.) Open to students approved by the instructor. Spring. (Cr. 3)

470. Marketing Tutorial/Independent Study. A program of supervised reading and research under the direction of a member of the Department. Topics and methods of research are to be developed in consultation with the supervising professor. Open to qualified students who meet the departmental requirements and have the approval of the Department Chair and the Dean. (Cr. 3)

**MATHEMATICS (MATH)**  
**COMPUTER SCIENCE (CMPT)**

Dr. Carol Hurwitz  
*Chair of the Department*

**General Requirements:** Courses must be taken in the order prescribed in the Summary of Course Requirements for the various Schools. Any course in which a failure is obtained must be repeated and passed before the student may proceed to more advanced work. The Department offers two majors: mathematics and computer science.

**Requirements for a Major in Mathematics:** A major program in mathematics is available in the School of Science within either the Liberal Arts Curriculum leading to a Bachelor of Arts degree or the Science Curriculum leading to a Bachelor of Science degree. These students complete MATH 103, 104, 201, 203, 213, 215, 313, 315, 316, 325, 407, 420, 460, CMPT 101 and 102, plus at least six additional credits in approved Departmental offerings. For students who major in mathematics and are selected for the honors sequence, MATH 109, 110, and 209 replace MATH 103, 104, and 201, respectively.

Students may also pursue a major program in Mathematics in the School of Education. Students who major in mathematics and are pursuing certification in secondary education complete MATH 103, 104, 201 (or corresponding honors courses), 213, 215, 311, 313, 315, 420, 421, 460, 466, and CMPT 101, 102. Students who are pursuing certification in elementary education complete MATH 103, 104, 201, 213, 215, 311, 420, 421, 466, CMPT 114, and 101 plus 3 credits in approved Departmental offerings.

A minimum grade of C in each of the required courses is necessary for the major. Before taking any major course, the student must obtain a grade of C or better in any prerequisite course.
Requirements for a Major in Computer Science.

A major program in computer science is available in the School of Science within either the Liberal Arts curriculum leading to a Bachelor of Arts degree or the Science Curriculum leading to a Bachelor of Science degree.

Requirements for the BS in Computer Science.

Students must complete MATH 103, 104, and 420; EECE 229 and 230; CMPT 101, 102, 241, 258, 312, 334, 335, 353, 360, 438 and 456, plus at least six additional credits in approved departmental electives. A minimum grade of C in each of the required courses is required for the major. Before taking any major course, the student must obtain a grade of C or better in any prerequisite course.

Requirements for the BA in Computer Science.

Students must complete MATH 103, 104, and 420; EECE 229 and 230; CMPT 101, 102, 241, 258, 312, 334, 335, 353, 360, and 456, plus at least nine additional credits in approved departmental electives. A minimum grade of C in each of the required courses is required for the major. Before taking any major course, the student must obtain a grade of C or better in any prerequisite course.

Requirements for a Minor in Mathematics: Five approved courses, including MATH 103, 104, 201 (or the corresponding honors courses). A minimum grade of C is required in all courses.

Requirements for a Minor in Computer Science: CMPT 101, 102, and 3 additional approved courses. A minimum grade of C is required in all courses.

MATHEMATICS (MATH)

Note: The following courses in Mathematics do not carry credit for the major or minor in mathematics: 100, 102, 105, 111, 211, 221, 222, 307.

100. Pre-Calculus Mathematics. Basic set theory, functions, and their graphs. Topics from algebra, theory of equations, trigonometry and analytic geometry. Intended to prepare students for a course in calculus. (Meets four hours per week.) (Cr. 3)


103-104. Calculus I-II. Limits, derivatives, continuity, differentiation and an introduction to the definite integral. Applications of the definite integral, transcendental functions, integration techniques and infinite series. (Meets four hours per week). Prerequisite: A satisfactory score on the mathematics placement exam is necessary to enroll in MATH 103. Students are reminded that a grade of C- or lower in MATH 103 may indicate inadequate preparation for MATH 104. (Cr. 3, 3)

105. Linear Mathematical Analysis. Functions, simultaneous linear equations and inequalities, and matrix algebra. Introduction to probability. (Cr. 3)

106. Calculus for Business Decisions. A one-semester course in the calculus of functions of one variable, intended for students in Business. Polynomial, rational, and exponential functions, and the logarithm. Limits, derivatives, techniques and applications of differentiation. Indefinite and definite integrals, applications of the integral. Prerequisite: MATH 105 or permission of the chair. (Cr. 3)

109-110. Honors Calculus I-II. Rigorous development of differential and integral calculus. Restricted to select students who will take these courses in lieu of MATH 103-104. (Meets four hours per week.) (Cr. 3, 3)
111. Pre-Calculus. (For students in the School of Business only.) Review of elementary algebra, introduction to analytic geometry, functions and their graphs, logarithmic and exponential functions, polynomial functions. (Meets four hours per week.) (Cr. 3)

112-113. Calculus with Pre-Calculus. Limits, derivatives, curve sketching and applications, antiderivatives and the definite integral. Calculus topics are integrated with a review of pre-calculus topics in context. Completion of the sequence is equivalent to completion of MATH 103. (Meets four hours per week.) (Cr. 3)

201. Calculus III. Algebraic and geometric aspects of vectors, functions of several variables, partial derivatives and multiple integrals. Prerequisite: MATH 104 or 110. (Cr. 3)

203. Differential Equations. This course focuses on techniques of solving first and second order ordinary differential equations. Methods include separation of variables, variation of parameters, and the Laplace transform. Applications include linear and nonlinear models. Prerequisite: MATH 201 or 209 or permission of instructor. (Cr. 3)

209. Honors Calculus III. Continuation of MATH 109-110. Fall. Prerequisite: MATH 110 or permission of instructor. (Cr. 3)

211. Elementary Statistics. An introduction to statistical methods: descriptive statistics, association between two variables, basic probability, discrete random variables, binomial and normal random variables, sampling distribution, confidence intervals, tests of significance. (Cr. 3)

213. Foundations for Higher Mathematics. This course will serve as a bridge between introductory and advanced mathematics. The context of set theory and logic will be used to develop the skills of constructing and interpreting mathematical proofs. Topics include principles of logical argument, congruence modulo n, induction, sets, functions, relations, equivalence relations, countability and uncountability of sets. Fall. Prerequisite: MATH 104 or MATH 110, or permission of instructor. (Cr. 3)

215. Linear Algebra. Linear equations and matrices, vector spaces, subspaces, linear independence, bases, dimension, inner product spaces, linear transformations, eigenvalues and eigenvectors, orthogonal matrices and diagonalization. Prerequisites: MATH 213, or permission of instructor. (Cr. 3)

216. Discrete Mathematics for Computer Science. An introduction to the mathematical concepts and techniques most frequently needed in the study of computer science: logic, induction, sets and relations, matrix algebra, and recursion. Fall. Prerequisite: MATH 104, or permission of the chair. (Cr. 3)

221, 222. Mathematics for the Elementary School Teachers I and II. Courses for prospective teachers in the elementary school who are not majoring in mathematics. The content and method will follow the current standards of the National Council of Teachers of Mathematics for the elementary level. Topics include tools for problem solving, numeration systems, number theory, geometry, and trigonometry. (Cr. 3, 3)

305. Vector Calculus. Review of vector algebra. Vector-valued functions. Divergence and curl. Multiple integrals; different coordinate systems. Line integrals, Green’s Theorem, independence of path, conservative force fields. Surface integrals, Divergence Theorem, Stokes’ Theorem. Applications. Prerequisite: MATH 201 or 209. (Cr. 3)

307. Fundamental Concepts. A course for prospective teachers of mathematics. There will be a strong concentration on the Topics of the New York State Regents Syllabus for secondary school mathematics. There will also be a computer component of the course which will include some work with current educational software. Mathematical topics will include sets, proofs, symbolic logic, analytic geometry and basic probability and statistics. Prerequisites: MATH 103, 104 or equiv., CMPT 114 or equiv. (Cr. 3)

311. Introduction to Higher Geometry. (formerly 411). Selected topics from Euclidean and non-Euclidean geometries. Further topics in higher geometry, as time permits. Offered every other year. Spring. **Prerequisites:** MATH 213, 215. (Cr. 3)

313. Analysis I. (formerly 413). A rigorous treatment of differential calculus of one variable: sequences, limits, continuity, the derivative. Fall. **Prerequisites:** MATH 201 and 213. (Cr. 3)

314. Analysis II. A continuation of 313. Topology of the real numbers, uniform convergence, Riemann integral, infinite series, Taylor and Fourier series, metric spaces. Spring. **Prerequisite:** MATH 313. (Cr. 3)

315. Algebra I. The first part of a two-semester sequence. An introduction to algebraic structures with an emphasis on groups, covering normal subgroups, cosets. Langrange’s theorem and the fundamental homomorphism theorems. Fall. **Prerequisites:** MATH 213 and 215. (Cr. 3)

316. Algebra II. The second part of a two-semester sequence. Further study of algebraic structures, such as rings, fields and integral domains. The homomorphism theorems and applications. Spring. **Prerequisite:** MATH 315. (Cr. 3)

325. Linear Algebra II. A continuation of the topics introduced in MATH 215, with emphasis on orthogonality, inner product spaces, eigenvalues and eigenvectors, diagonalization, quadratic forms and numerical linear algebra. Fall. **Prerequisite:** MATH 215. (Cr. 3)

333. Applied Statistics. A calculus-based survey of probability and statistics with applications in social, natural sciences and engineering. Topics include probability, discrete and continuous random variables, point and interval estimation, hypothesis testing, linear models (encompassing regression and ANOVA). **Prerequisite:** MATH 104. (Cr. 3)

407. Complex Analysis. The complex plane, functions, limits and continuity. Analytic functions, Cauchy–Riemann equations. Cauchy integral theorem and consequences. Additional topics may include: Power series, Taylor and Laurent series, classification of singularities, the Residue Theorem and its applications, conformal mapping, selected applications. Spring. **Prerequisite:** MATH 203 or permission of instructor, MATH 213 recommended. (Cr. 3)

417. Topology. Beginning with a review of set theory and basic topological definitions, topological spaces are studied with metric spaces considered as examples. Compactness, connectedness, metrization theorems. An introduction to homotopy theory. **Prerequisite:** MATH 213 or permission of instructor. (Cr. 3)

420. Probability. (formerly 323). Basic theorems in probability, random variables, distribution functions, expected values; binomial, Poisson and normal distributions. Fall. **Prerequisite:** MATH 104. (Cr. 3)

421. Statistical Inference. (formerly 324). Sampling distributions, point estimation, interval estimation, testing statistical hypotheses, regression and correlation. Spring. **Prerequisite:** MATH 420. (Cr. 3)

423. Advanced Mathematical Statistics I. Analysis of variance, regression analysis, non-parametric and sequential tests of hypotheses. **Prerequisite:** MATH 421. (Cr. 3)

425. Operations Research. Optimization, linear programming, simplex method, duality theory. Transportation problems, scheduling problems, queuing theory. **Prerequisite:** MATH 215 or permission of instructor. (Cr. 3)
460. Problem Seminar. A capstone course for senior mathematics majors. Problems will be chosen to integrate the themes of the major. Oral presentations and mathematical writing and proof will be emphasized. Spring. Prerequisites: MATH 313 or 315 or permission of instructor. (Cr. 3)

461-462. Topics in Mathematics. Admission only by permission of the Chair of the Department. This course is offered when demand warrants. (Cr. 3, 3)

465. Topics in Applied Mathematics. Topics covered include Fourier series, partial differential equations, the Laplace Transform. (Cr. 3)

466. Seminar for Mathematics Education. This course is intended for prospective mathematics teachers. Topics in high school mathematics are examined from an advanced perspective. Topics include the real and complex numbers, functions, equations, and trigonometry. (Enrollment restricted to students in the School of Education.) Spring. Prerequisites: MATH 213 and 215. (Cr. 3)

467. Mathematics Seminar. A course limited to students of superior ability who wish to study some advanced topic mutually agreed upon by them, the instructor and the Department Chair. (Cr. 3)

469. Independent Study. Individual study and/or research under faculty supervision. (Cr. 3)

COMPUTER SCIENCE (CMPT)

Note: The following courses in Computer Science do not carry credit for the major or minor in computer science: 114, 115.

101. Computer Science I. An introduction to programming, problem solving, and algorithm development using a modern scripting language. Fall. (Cr. 3)

102. Computer Science II. The C++ programming language. Classes and objects, recursion, pointers, and data structures including stacks, queues, lists, and trees. Prerequisite: A grade of C or better in CMPT 101. Spring. (Cr. 3)

114. Computers and Their Uses. Introduction to computer systems, hardware and software including applications packages such as word processing, spreadsheet and database. (Cr. 3)

115. Intermediate Computer Applications. This course is an alternative to CMPT 114, covering topics chosen at the discretion of the instructor. Permission required. (Cr. 3)

214. Teaching and Learning with Technology. Examines various uses of technology in the classroom to promote student learning. (Cr. 3)

231. Assembly Language. An overview of the computer's internal structure. Representation of data. Assembly language instruction set. Common programming structures in assembly language. Discussion of the assembly process. Fall. Prerequisites: CMPT 102 or CMPE 202. (Cr. 3)

238. Data Structures. Efficiency of search, sort, and hash algorithms. Stacks, queues, priority queues, binary trees, binary search trees, general trees, heaps, and heap sort. Prerequisite: CMPT 102 or CMPE 202. (Cr. 3)

241. Web Programming. An introduction to Web programming using DHTML and Javascript for development of Web-based applications. Current server-side scripting languages such as Python or PHP will be used for creating dynamic Web pages. Fall Prerequisite: CMPT 102 or CMPE 202 or permission of the instructor. (Cr. 3)

258. Database Systems I. An introduction to database systems concepts; SQL, database design, normalizing tables, functional dependencies, entity-relationship and relational database models; use of object-oriented design and event programming. Spring. Prerequisite: CMPT 102 or CMPE 202 or permission of the instructor. (Cr. 3)

312. Operating Systems. File systems, CPU scheduling, memory management, virtual memory and machines, disk scheduling, deadlocks and their prevention, concurrency, protection mechanisms, multiprocessors, distributed
systems. A survey of the services provided by some of the more popular operating systems. Spring. **Prerequisite:** CMPT 353. (Cr. 3)

### 334. Computer Organization
A study of the internal architecture of a computer. Topics include instruction sets, hardwired and microprogrammed control unit designs, memory systems, I/O systems, introduction to pipeline and parallel processing. **Prerequisite:** EECE 229 (Cr. 3)

### 335. Discrete Structures
A study of structures most frequently encountered in computer science; graphs, trees, search algorithms, recurrence relations and coding theory. Fall. **Prerequisite:** CMPT 102 or CMPE 202. (Cr. 3)

### 336. Simulation and Modeling
Probability distributions, mathematical models, simulation of queuing systems, Markov chains, discrete and continuous simulations. **Prerequisite:** MATH 420, and CMPT 102 or CMPE 202. (Cr. 3)

### 341. Programming Languages
Organization of programming languages, study of language specification and analysis, control structures and data flow. **Prerequisites:** CMPT 335 and 360. (Cr. 3)

### 353. Systems Programming
C programming language. Introduction to the UNIX/Linux operating systems and shell programming. Design and implementation of selected systems software in the UNIX/Linux environment. Introduction to Perl. Fall. **Prerequisite:** CMPT 102 or CMPE 202. (Cr. 3)

### 358. Database Systems II
A continuation of 258. Introduction to middleware, database connectivity and Web development issues; ODBC, OLE DB, ActiveX Data Objects (ADO); security. **Prerequisite:** CMPT 258. (Cr. 3)

### 360. Object Oriented Design with Java
Classes and objects, abstract data types, encapsulation, inheritance, polymorphism, and their implementation in Java. A study of the predefined packages for stacks, queues, priority queues, lists, and maps. Iterators. **Prerequisite:** CMPT 102 or CMPE 202. (Cr. 4)

### 415. Computer Graphics
Printer graphics, graphics primitives, two and three-dimensional transforms, clipping, hardware, projections, user interface, raster methods, hidden surface algorithms, color and shading. Fall. **Prerequisites:** CMPT 102 or CMPE 202, and MATH 104. (Cr. 3)

### 420. Artificial Intelligence
Introduction to a functional language, such as LISP. Simulation of intelligence by machines in the areas of natural language processing, automated reasoning, computer vision, and robotics. Spring. **Prerequisite:** CMPT 102 or CMPE 202 or permission of the instructor. (Cr. 3)

### 431. Multimedia
An introduction to the production of multimedia products using Macromedia Director. Elements of animation. Adding audio: WAV and Shockwave file formats. Digital video using QuickTime and AVI file formats. **Prerequisite:** CMPT 102 or CMPE 202. (Cr. 3)

### 438. Algorithms
Random numbers, the master method, hashing, heaps, sorting and searching, B-trees, greedy algorithms, graph algorithms, parallel algorithms, Strassen’s algorithm, FFT, and NP-completeness. **Prerequisites:** CMPT 335 and 360. (Cr. 3)

### 439. Numerical Computation
Selected topics in computation, such as: solution of non-linear equations, Monte Carlo simulation, polynomial approximation, least squares curve fitting, numerical integration and differentiation, and numerical solution of ordinary differential equations. **Prerequisite:** CMPT 102 or CMPE 202, and MATH 104. (Cr. 3)

### 443. Computability Theory
Turing-computable functions, and their relationship to recursive functions. Formal languages, regularity, finite and pushdown automata and their simulation. Universality of programs and Turing machines. Unsolvability and an introduction to the theory of computational complexity. Fall. **Prerequisite:** CMPT 335 or MATH 213. (Cr. 3)
454. Compiler Design. Introduction to automata and context-free grammars. Basic techniques of parsing and derivations. Generators, symbol tables, syntax-directed translation. Error detection, optimization, and data-flow analysis. Spring. Prerequisite: Permission of the instructor. (Cr. 3)

456. Software Engineering. A study of the principles and methods advocated for the development of large and complex software systems. Each student will be required to participate in a team project devoted to the specification, design and implementation of a sizable software system. Spring. Prerequisite: CMPT 335 or 360 or permission of instructor. (Cr. 3)

463-464. Topics in Computer Science. Admission only by permission of the Chair of the Department. This course is offered when demand warrants. (Cr. 3)

467-468. Topics in Computer Science. Admission only by permission of the Chair of the Department. This course is offered when demand warrants. (Cr. 3, 3)

469. Independent Study. Individual study and/or research under faculty supervision. (Cr. 3)

MECHANICAL ENGINEERING (MECH)

Dr. Zella Kahn-Jetter
Chair of the Department

210. Introduction to Mechanical Systems and Components. This is an introductory course in mechanical engineering. Topics include: a brief history of mechanical engineering; discussion of mechanical engineering principles and concepts; and a review of each of the important specialties within mechanical engineering. The course also covers: theory and operation of mechanical systems and components; basic measurement practices; and the use and operation of basic engineering tools. One lecture hour, two-hour laboratory. Fall. (Cr. 2)

211. Introduction to Design. Introduction to the design process, engineering drawing concepts, and computer-aided drafting. In the area of design this course covers such topics as design methodology, project planning, quality function deployment, basic optimal design, material selection, engineering economics, and communication. Basic engineering drawing concepts are also covered along with computer applications such as solid modeling and computer drafting. Students are also required to complete a simple design and “build-it” project. One lecture hour, three-hour laboratory. Fall. Prerequisite: ENGS 116. (Cr. 3)

230. Introductory Solid Mechanics. Analysis of stress and strain due to axial, torsional, and flexural loads; beams, shafts, columns. Elastic deformation under axial, flexural, and torsional loads. Statically determinate and indeterminate problems; principles of superposition and compatibility. Elastic column buckling. Application of Castigliano’s Theorem. Static failure theories and design for steady loading. Four lectures. Spring. Prerequisite: ENGS 206. (Cr. 4)


302. Applied Thermodynamics. Power cycles and efficiencies; air conditioning, refrigeration and heat pump cycles; analysis of moist air systems; design of simple thermal systems. Three lectures. Fall. Prerequisite: ENGS 205. (Cr. 2)

312. Introduction to Mechatronics. A study of the interface between mechanical and electrical systems. Topics include: actuators; sensors; and interfacing elements. The actuators covered include pneumatic, hydraulic and electrical devices, with emphasis on the analysis associated with each system. The sensors portion covers the devices used to obtain information needed for system control, as well as a study of the necessary interfacing components. Other issues addressed will include power sources and operating practices. Three lectures. Spring. Corequisite: MATH 203. (Cr. 3)

318. Fluid Mechanics. Fluids properties; fluid statics; integral form of governing equations of fluid motion; dimensional analysis; internal flow (pipe flow); differential form of governing equations of fluid motion; external flow; introduction to boundary layer theory; flow around immersed bodies, fluid machinery; compressible flow; one-dimensional isentropic flow; normal and oblique shocks; Rayleigh and Fanno lines. Four lectures. Fall. **Prerequisite:** ENGS 206. (Cr. 4)

323. Machine Design. Design for fatigue strength and reliability. Design of mechanical elements such as screws, bearings, gears, shafts, clutches and brakes, belts and chains. Individual design projects. Four lectures. Fall. **Prerequisite:** MECH 230. (Cr. 4)

325. Heat Transfer. Conduction, convection and radiation as different modes of heat transfer. Steady and unsteady states. Combined effects. Applications. Three lectures. Spring. **Prerequisites:** ENGS 205, MECH 318. (Cr. 3)

332. Finite Element Analysis and Computer Aided Design. Introduction to the theory of finite element methods; introduction to the variational calculus, one-dimensional linear element, element matrices, direct stiffness method, coordinate systems, introduction to two-dimensional elements. Design process using CAD software. Solid modeling, finite element modeling and simulation. Selected problems in mechanical engineering will be modeled, designed and analyzed and solutions will be compared to those obtained from alternate methods. Two-hour lecture, two-hour laboratory. Spring. **Prerequisite:** MECH 323. (Cr. 3)

336. Manufacturing Processes. Introduction to metal cutting, and manufacturing processes such as turning, milling, and drilling. Other topics covered include metal shearing and forming, the economics of metal cutting and process planning, inspection and statistical quality control, automation in manufacturing and computer numerical control. Three lectures. Spring. **Prerequisites:** ENGS 201, MECH 230. (Cr. 3)

337. Manufacturing Systems Laboratory. This lab gives hands-on practice in various computer aided manufacturing processes including CNC machinery, controls, and robotics. Three-hour laboratory. Spring. **Prerequisite** MECH 314. **Corequisite:** MECH 336. (Cr. 0)

401. Mechanical Engineering Design I. Engineering design process, problem definitions, information sources, alternative solutions, technical and societal constraints. Group design project and report. One lecture hour, two design hours. Fall. **Prerequisites:** MECH 314, 318, 323, 325, 332. (Cr. 2)

402. Mechanical Engineering Design II. A continuation of MECH 401. The design project in MECH 401 will be expanded and a model will be built and tested. Students may also start a new project in consultation with faculty. Group or individual design project and report. One lecture, two design hours. Spring. **Prerequisites or Corequisites:** MECH 401. (Cr. 2)

405. Mechanical Engineering Design III. A continuation of MECH 401. The design project in MECH 401 will be expanded and a model will be built and tested. Students may also start a new project in consultation with faculty. Group or individual design project and report. One lecture, two design hours. Spring. **Prerequisites or Corequisites:** MECH 401. (Cr. 2)

407. Solid Mechanics. Review of principles of solid mechanics and vector methods. Stress-strain-temperature relations, residual stresses and stress concentrations. Beam and column behavior, shear center, torsion of non-circular members, buckling and energy methods. Three lectures. **Prerequisites:** MECH 230, MECH 314, 323. (Cr. 3)
408. Mechanical Engineering Projects I. Individual student research or design projects. Where applicable, computer methods, experimental work, and literature study will be used. Proposal and report required. Six to nine hours of project. (Taken only with approval of advisor and chair of department.) **Prerequisites:** MECH 314, 318, 323, 325. (Cr. 3)

410. Mechanical Engineering Projects II. Individual student research or design projects. A continuation of MECH 408 for students who have successfully pursued a research or design project and wish to continue it for a full year. Proposal and report required. Six to nine hours of project. (Taken only with the approval of advisor and chair of department.) **Prerequisite:** MECH 401 or MECH 408. (Cr. 3)

411. Dynamic Systems. Vibration of simple systems, including the vibration of single degree of freedom mass-spring-dampers, seismic vibration, and the vibration of continuous and multidegree of freedom systems. Analysis of basic control schemes, root locus diagrams, Bode diagrams, and simple controllers. Three lectures. Fall. **Prerequisites:** MATH 203, ENGS 220. (Cr. 3)

414. Engineering Economy and Project Management. This course provides a background in company operation and management tools. These include: economics; project planning; forecasting; decision analysis; inventory control; and network analysis. Emphasis will be placed on solving practical problems by using software tools such as Excel and other appropriate analysis tools. Three lectures. Fall. **Prerequisite:** Senior Status*. (Cr. 3)

415. Analysis and Design of Mechanisms. Mechanism terminology. Graphical kinematics, concepts of freedom systems. Gears and cams. Analytical synthesis: two and three precision point synthesis. Structure and use of a general computer program for kinematic analysis. Two lectures, two-hour computer laboratory. **Prerequisites:** ENGS 220, MECH 211. (Cr. 3)

422. Thermal/Fluids System Design. Design and selection of basic components of typical thermal/fluids systems such as heat exchanger, pumps, compressors, and turbines. System synthesis and optimization. Individual or group design projects. Three lectures. Spring. **Prerequisites:** MECH 302, 318, 325. (Cr. 3)

425. Analysis of HVAC Systems. Air conditioning systems; moist air properties and conditioning processes indoor air quality, comfort and health; heat transmission in building structures; space heat load; cooling load; energy calculations. Three lectures. Fall. **Prerequisite:** MECH 302, 325. (Cr. 3)

427. Special Topics in Mechanical Engineering. Special topics in mechanical engineering of current interest to undergraduate students; subject matter and prerequisite will be announced in advance of particular semester offering. Three lectures. **Prerequisite:** Senior Status*. (Cr. 3)

428. Internal Combustion Engines. Spark ignition and compression ignition cycles; gas cycles with arbitrary heat addition, heat loss, and mass loss; fuel air combustion thermodynamics; air, fuel and exhaust flows; combustion and emission; fuels, additives, and lubricants; engine performance. Three lectures. **Prerequisite:** MECH 302. (Cr. 3)

429. Design of HVAC Systems. Design of piping in HVAC systems; pumps and compressors, and their selection; fans, air distribution in buildings and duct design; heat exchangers; refrigeration systems. Three lectures. **Prerequisite:** MECH 425. (Cr. 3)

435. Legal Aspects of Engineering. An interdepartmental course covering basic legal doctrines, professional-client relationship, design and practice problems. Topics include American judicial system, contracts, quasicontracts, agency, licensing, client obligations, construction process, copyrights, patents and trade secrets. Three lectures. **Prerequisite:** Senior Status*. (Cr. 3)
436. Fundamentals of Engineering. Review of the fundamental principles of engineering. Preparation to qualify as a licensed professional engineer. Specific attention is placed on review of the principles that are the basis for questions on the Fundamentals of Engineering examination. Prerequisite: Senior Status* (Cr. 3)

446. Manufacturing Systems. Group projects emphasizing design for manufacturing, manufacturing system simulation, and prototype fabrication. Concurrent with projects are lectures on modern manufacturing technologies. Two lectures and two-hour laboratory. Prerequisite: MECH 336. (Cr. 3)

512. Energy Conversion. Review of steam power; gas turbines; and combustion of hydrocarbon fuels; coal and fluidized bed; power generation using solar energy; solar energy for heating and cooling of buildings; solar cells; windmills; geothermal energy; ocean thermal energy; hydrogen economy; fuel cells; magnetohydrodynamic (MHD) energy conversion. Prerequisite: Senior Status*. (Cr. 3)

516. Turbo Machinery. Review of fundamentals of fluid mechanics, dimensional analysis in fluid machinery; classification and characteristics of fluid machinery, component efficiencies, incompressible flow machines, compressible flow machines. Prerequisite: Senior Status*. (Cr. 3)

528. Combustion Systems. Fundamentals of combustion processes, thermochemistry, equilibrium, adiabatic flame, temperature calculations, thermodynamic cycle analyses and performance estimations of turbojets, turbofans, turboshaft, and ramjet engines, preliminary design of liquid and solid propellant rockets. Prerequisite: Senior Status*. (Cr. 3)

* A prerequisite of “Senior Status” means that all junior mechanical engineering courses must have been successfully completed. Exceptions require the approval of the department chair.

MODERN LANGUAGES (MFL)

Marlene Gottlieb, Ph.D.
Chair of the Department

Manhattan College’s Modern Languages Department offers majors and minors in French and Spanish as well as minors in Italian and Japanese. In addition, it organizes introductory courses in Arabic, Chinese, and German. Modern Hebrew, Latin, and Russian are offered through a cooperative program with Lehman College at the Lehman College campus. Students enrolled in those courses will follow Lehman College’s catalog and schedule.

Language courses are oriented towards the achievement of oral and written proficiency. The goals of the department of Modern Languages are to develop the ability to understand, speak, read and write in a second language effectively; to provide better understanding of other cultures and other modes of expression in order to broaden international understanding; to prepare students for graduate studies and careers in education, international business, communication, government, social services and related fields.

Entering students who continue language study begun elsewhere are placed in an appropriate language course on the basis of their academic record, number of years of language study, and intended major.

In addition, Foreign Language majors are encouraged to combine language studies with other disciplines, resulting in double majors.

Requirements for a Major in Spanish:
Thirty credits beyond 102. No more than 6 credits at the 200 level or 6 AP credits may be applied to the major. Spanish 350 and 351 (Masterworks I and II) are required of all majors and are a prerequisite for all 400-level courses. Of the remaining electives, 9 credits must be at the 400 level. A major’s program should be carefully planned in consultation with a faculty advisor to assure oral and writing competence in Spanish. Study abroad is strongly encouraged.
Requirements for a Major in French:
Thirty credits beyond 102. No more than 6 credits at the 200 level or 6 AP credits may be applied to the major. French 350 (Introduction to French Literary Study) is required. The remaining credits may be chosen from the 300 or 400 levels. A major’s program of study should be carefully planned with an academic advisor to assure oral and writing competence in French. Study abroad is strongly encouraged.

Requirements for a French Concentration in Education:
Thirty credits beyond 102. No more than 6 credits at the 200 level or 6 AP credits may be applied to the concentration. The following are required: French 301 or 307; 6 credits from French 303, 340, 341 and 342; French 350. The remaining electives must be at the 300 or 400 levels. In addition, the student must take 6 credits of a second modern language (other than English). Study abroad is strongly encouraged in the sophomore year.

Requirements for a Spanish Concentration in Education:
Thirty credits beyond 102. No more than 6 credits at the 200 level or 6 AP credits may be applied to the concentration. The following are required: Spanish 307; Spanish 340 and 341; Spanish 350 and 351. Of the remaining electives, 6 credits must be at the 400 level. In addition, the student must take 6 credits of a second modern language (other than English). Study abroad is strongly encouraged in the sophomore year.

Requirements for a Minor in a Modern Language:
The Department offers minors in French, Italian, Japanese and Spanish. Minors are required to take 15 credits beyond 102 (the Japanese minor allows up to 3 credits from the 100 level). Of these, only 6 credits may be applied from the 200 level, and only six credits of 300 and 400 level work may be transferred from a study abroad program. The minor must constitute a coherent program of study designed with an academic advisor and aimed at achieving oral proficiency in the language.

Grade Requirements: A minimum grade of C is required for course credit toward a major or a minor in Modern Languages.

Study Abroad Programs: Majors are strongly encouraged to study abroad either for a year, a semester, or a summer term at an approved program abroad. Students may choose to participate in the programs of the Institute of European Studies (for study in France, Germany, Italy, and Spain), The American Institute for Foreign Study or with Manhattan College’s own study abroad programs at the Universidad LaSalle in Mexico City, the Universidad Complutense in Madrid, or the University of Paris. To be eligible for study abroad, students must have an overall grade point average of 2.75 and an average of 3.0 in their language major or minor.

ARABIC (ARAB)

Foundation Courses

101-102. Introduction to the Study of Arabic. A course designed to introduce students to the sounds and scripts of Arabic, common phrases and rudimentary grammar. The course also provides an introduction to the culture of Arabic-speaking peoples. Three instructional hours plus one hour of laboratory practice. (Cr. 3, 3)

For students with little or no background in Arabic.

CHINESE (CHIN)

Foundation Courses

101-102. Introduction to the Study of Chinese. A course designed to introduce students to the sounds and characters of Chinese, as well as common phrases and rudimentary grammar. The course also provides an introduction to the culture of China. Three instructional hours plus one hour of laboratory practice. (Cr. 3, 3)

For students with little or no background in Chinese.
FRENCH (FREN)

Foundation Courses

101-102. French for Beginners. An introduction to the four basic skills with emphasis on speaking and comprehending spoken French. The course also provides an introduction to the culture of French-speaking peoples. Three instructional hours plus one hour of laboratory practice. (Cr. 3, 3)

For students with little or no background in French or with only one year of high school French.

201-202. French for Communication. An intensive review of French and further development of listening, speaking, reading, and writing skills through extensive use of audio and visual aids. Three instructional hours plus one hour of laboratory practice. Prerequisite: FREN 102 or a minimum of two years of high school French. (Cr. 3, 3)

209. Speaking French. Intensive practice in oral skills through extensive use of aural and written materials. Review of grammar. Three instructional hours plus one hour of laboratory practice. Prerequisite: FREN 102 with recommendation of professor, 201 and 202, or placement with a strong background in French. (Cr. 3)

210. Writing French. Intensive practice of writing skills through the use of aural and written materials. Review of grammar. Three instructional hours plus one hour of laboratory practice. Prerequisite: FREN 102 with recommendation of the professor, 201 and 202, or placement with a strong background in French. (Cr. 3)

216, 316. Aspects of French Culture. An on-site study of different aspects of the political, socio-economic, and cultural life of France together with a survey of its artistic heritage. The course is offered in France during the summer. (Cr. 3)

219. Keeping French Alive. A course designed to improve the student’s command of French through readings and discussions on a particular subject of interest to the student or related to a course the student is currently taking. Offered upon the request of the student. (Cr. 1)

Upper-Level Courses

Prerequisite for all 300-level courses is one of the following: FREN 202 with recommendation of professor; 209 and 210; or placement with an extraordinary background in French.

301. Advanced French Conversation and Phonetics. Intensive oral practice with everyday vocabulary together with an analysis of French sounds and a study of rhythm and intonation. (Cr. 3)

307. Advanced Grammar and Composition. An intensive study of the grammatical structures of French aimed at refining the student’s oral and written command of the language. (Cr. 3)

340. French Civilization. The historical, social, and cultural background of France from the Middle Ages through the 19th century. Lectures, readings, discussions, and reports. (Cr. 3)

341. Contemporary French Civilization. The historical, social, and cultural reality of France and the Francophone world in the 20th Century. Lectures, readings, discussions, and reports. (Cr. 3)

342. The Francophone World: A Cultural Study. This course examines Francophone culture from the Caribbean, Sub-Saharan Africa, the Maghreb as well as Vietnam. Through literary texts, films, poems and songs we will discuss topics such as colonialism, post-colonialism, gender, religion and cultural issues as well as the concept of identity of the colonized and the colonizer. All readings and discussions in French. (Cr. 3)

350. Introduction to French Literary Study. A survey of the great writers and literary movements of the French-speaking world together with an introduction to the analysis of literary texts. Required for all French majors in Arts and Education and highly recommended for minors. (Cr. 3)
Advanced Courses

Prerequisite for all 400-level French courses is the completion of 340, 341, 342, or 350, or permission of the Chair.

420. Special Topics in French. An intensive study of a single author, genre, movement, or literary topic. Topics change yearly. (Cr. 3)

435. The French Short Story. A study of representative storytellers of the nineteenth and twentieth centuries. (Cr. 3)

445. Baudelaire and Modern Poetry. A study of the poetic expression of Baudelaire, Rimbaud, Verlaine, the Surrealists, and others. (Cr. 3)

455. French Theatre of the Twentieth Century. Tradition and innovation in contemporary French theatre. Reading and discussion of the most representative plays of Claudel, Giraudoux, Sartre, Camus, Anouilh, and Beckett. (Cr. 3)

460. Independent Study. In consultation with instructor and approval of Chair. (Cr. 3)

ITALIAN (ITAL)

Foundation Courses

101-102. Italian for Beginners. An introduction to the four basic skills with emphasis on speaking and comprehending spoken Italian. The course also provides an introduction to Italian civilization and culture. Three instructional hours plus one hour of laboratory practice. Prerequisite ITAL 101 and 102 or two years of high school Italian. (Cr. 3, 3)

For students with little or no background in Italian or with only one year of high school Italian.

201-202. Italian for Communication. An intensive review of Italian and further development of listening, speaking, reading, and writing skills through extensive use of audio and visual aids. Three instructional hours plus one hour of laboratory practice. Prerequisite ITAL 101 and 202, or placement with a strong background in Italian. (Cr. 3, 3)

209. Speaking Italian. Intensive practice in oral skills through extensive use of aural and written materials. Review of grammar. Three instructional hours plus one hour of laboratory practice. Prerequisite: ITAL 102 with recommendation of professor, 201 and 202, or placement with a strong background in Italian. (Cr. 3)

210. Writing Italian. Intensive practice of writing skills through the use of aural and written materials. Review of grammar. Three instructional hours plus one hour of laboratory practice. Prerequisite: ITAL 102 with recommendation of the professor, 201 and 202, or placement with a strong background in Italian. (Cr. 3)

216, 316. Aspects of Italian Culture. An on-site study of different aspects of the political, socio-economic, and cultural life of Italy together with a survey of its artistic heritage. The course is offered in Italy during the summer. (Cr. 3)

Upper-Level Courses

Prerequisite for all 300-level courses is one of the following: ITAL 202 with recommendation of professor, 209 and 210, or advanced placement with an extraordinary background in Italian.
303. **Italian Culture through Film.** Italian language, history, and civilization are studied through the viewing and study of great films. Three instructional hours. The course is conducted in English and is open to all students. **Prerequisite for Italian minors:** ITAL 209-210. For credit, Italian minors must do all written work in Italian. (Cr. 3)

307. **Advanced Grammar and Composition.** An intensive study of the grammatical structures of Italian aimed at perfecting the student's oral and written command of the language. (Cr. 3)

340. **Medieval and Renaissance Italian Civilization.** A study of the art, music, philosophy, and literature of Medieval Italy and its development into the Renaissance of Western Culture. Lectures, readings, and discussions in Italian. (Cr. 3)

341. **Contemporary Italian Civilization.** The major issues affecting modern Italy are explored through art, music, film, philosophy, and literature, as well as through readings on its political, economic, and social reality. Lectures, readings, and discussions in Italian. (Cr. 3)

350. **Masterworks in Italian.** A survey of the great writers and literary movements of Italian literature together with an introduction to the analysis of literary texts. (Cr. 3, 3)

420. **Special Topics in Italian.** An intensive study of a single author, genre, movement, or literary theme. (Cr. 3)

460. **Independent Study.** In consultation with instructor and approval of Chair. (Cr. 3)

**JAPANESE (JAPN)**

**Foundation Courses**

101-102. **Introduction to the Study of Japanese.** A course designed to introduce students to the sounds and script of Japanese, common phrases and rudimentary grammar. The course also provides an introduction to the culture of Japan. Four instructional hours plus one hour of laboratory practice in 101, and five instructional hours plus one hour of laboratory practice in 102. (Cr. 4, 5) *For students with little or no background in Japanese.*

201-202. **Intermediate Japanese.** Emphasis on vocabulary, grammar, syntax, conversation, and writing in Kanji and Kana. Three instructional hours and one hour of laboratory practice. Offered at Lehman College. **Prerequisite:** JAPN 101 and 102. (Cr. 3, 3)

301-302. **Advanced Japanese.** Review and extension of grammar and syntax through the discussion of magazine, newspaper and literary texts. Continued study of the appropriate use of Kanji and Kana. Three instructional hours plus one hour of laboratory practice. Offered at Lehman College. **Prerequisite:** JAPN 201 and 202. (Cr. 3, 3)

**SPANISH (SPAN)**

**Foundation Courses**

101-102. **Spanish for Beginners.** An introduction to the four basic skills with emphasis on speaking and comprehending spoken Spanish. The course also provides an introduction to the culture of Spanish-speaking peoples. Three instructional hours plus one hour of laboratory practice. (Cr. 3, 3) *For students with little or no background in Spanish or with only one year of high school Spanish.*

201-202. **Spanish for Communication.** An intensive review of Spanish and further development of listening speaking, reading, and writing skills through extensive use of audio and visual aids. Three instructional hours plus one hour of laboratory practice. **Prerequisite:** SPAN 101 and 102 or a minimum of two years of high school Spanish. (Cr. 3, 3)

207. **Intermediate Spanish Grammar.** An introduction to the basic grammatical and syntactical structures of Spanish. Offered only in the Manhattan College Madrid Program. (Cr. 3)

209. **Speaking Spanish.** Intensive practice in oral skills through extensive use of aural and written materials. Review of grammar. Three instructional hours plus one hour of laboratory...
practice. Offered every semester. **Prerequisite:** SPAN 102 with recommendation of the professor, 201 and 202, or placement with a strong background in Spanish. Not intended for Spanish native or heritage speakers. (Cr. 3)

210. Writing Spanish. Intensive practice of writing skills through the use of aural and written materials. Review of grammar. Three instructional hours plus one hour of laboratory practice. Offered every semester. **Prerequisite:** SPAN 102 with recommendation of the professor, 201 and 202, or placement with a strong background in Spanish. Not intended for Spanish native or heritage speakers. (Cr. 3)

216, 316. Aspects of Hispanic Culture. An on-site study of various aspects of the political, socio-economic and cultural life of a Hispanic country or region. The course is offered in Manhattan College’s Madrid Program and occasionally during the winter interim and/or the summer session. (Cr. 3)

217-218. Spanish for Heritage Speakers. A course designed for students who have learned Spanish in the home environment but need formal training to improve their communicative skills. The course also provides an introduction to the culture and civilization of Spanish-speaking peoples. For Latinos/as and native speakers only. (Cr. 3, 3)

**Upper-Level Courses**

Prerequisite for all 300 level courses: One of the following: 209 and 210 or 217 and 218, or placement with an extraordinary background in Spanish.

300. Hispanic Musical Heritage. Song lyrics of the rich and diverse musical traditions of Spanish-speaking peoples will serve as a basis for studying the Spanish language as well as aspects of Hispanic culture. (Cr. 3)

303. Spanish Culture through Film. Spanish conversation and composition as well as Hispanic civilization are studied through the viewing of films from Spain and Spanish America. Three instructional hours. (Cr. 3)

307. Advanced Grammar and Composition. An intensive study of the grammatical structures of Spanish aimed at perfecting the student’s oral and written command of the language. (Cr. 3)

309. Advanced Conversation. Techniques of conversation and intensive oral practice of Spanish. Offered only in the Manhattan College Madrid Program. (Cr. 3)

310. Advanced Composition. Practice of the conventions of written Spanish through the study of journalistic articles, essays and literary works. Offered only in the Manhattan College Madrid Program. (Cr. 3)

320. Special Topics in Hispanic Culture Studies. An intensive study of a particular region of the Spanish-speaking world or of a cultural topic common to all Hispanic countries. Topics change yearly. (Cr. 3)

340. Spanish Civilization. The major issues that have affected Spain are explored through film, art, and the reading of historical and literary texts. The course has a strong emphasis on discussion. Required for Spanish majors in Education. (Cr. 3)

341. Spanish American Civilization. The major issues that have affected Spanish America are explored through film, art, and the reading of historical and literary texts. The course has a strong emphasis on discussion. Required for Spanish majors in Education. (Cr. 3)

342. The Hispanic Caribbean: A Cultural Study. The Spanish Caribbean's history and culture from 1492 to the present will be explored through art, film, music and the reading and analysis of literary, journalistic and historical texts. Strong emphasis on reading, writing and discussion. (Cr. 3)

350, 351. Masterworks in Spanish. A survey of the great writers and literary movements of the Spanish-speaking world together with an introduction to the analysis of literary texts. Required for all Spanish majors in Arts and Education and highly recommended for minors. (Cr. 3, 3)
Advanced Courses

Prerequisite for all 400 level Spanish courses: SPAN 350 or 351, or permission of Chair.

420. Special Topics in Hispanic Literature. An intensive study of a single author, genre, movement, or literary topic. Topics change yearly. (Cr. 3)

423. Great Hispanic Poets. An introduction to the analysis of poetry through the study of the great poets of the Spanish language such as Garcilaso, St. John of the Cross, Góngora, Sor Juana Inés de la Cruz, Bécquer, Martí, Dario, Jiménez, Machado, Mistral, Lorca, Vallejo, and Neruda. (Cr. 3)

424. The Modern Novel in Spain and Spanish America. A survey of the development of modern fiction from the great 19th century Spanish Realists (Galdós and Clarín) to the Latin American “Boom” (Asturias, García Márquez, Carpentier, Fuentes, Vargas Llosa, etc.). (Cr. 3)

427. Cervantes. An in-depth analysis and discussion of Don Quijote and other works by Cervantes. (Cr. 3)

429. The Spanish Golden Age. A survey of the history, art, and literature of Spain during the 16th and 17th centuries. (Cr. 3)

435. Spanish-American Short Fiction. A study of the development of the short narrative forms in Spanish America in relationship to the social, political, and historical reality. Readings from the works of Quiroga, Borges, García Márquez, Cortázar, Fuentes, Vargas Llosa, Rulfo and Donoso. (Cr. 3)

440. Women in Hispanic Literature. Modalities of portrayal of female protagonists by male and female writers from the 19th century to the present with emphasis on the reinterpretation of the role of women within the new social-political reality of the Hispanic world. (Cr. 3)

460. Independent Study. In consultation with instructor and approval of Chair. (Cr. 3)

PEACE STUDIES (PEAC)

Dr. Margaret M. Groarke
Director of the Program

The Peace Studies Program is dedicated to the search for solutions to the problems of war and human injustice. It is an interdisciplinary academic program that examines the following problem/opportunity areas:

- Arms Races and Wars
- Economic, Political, and Social Justice
- Conflict Creation, Management, and Resolution
- Nonviolent Philosophies and Strategies of Resistance
- World Community and World Government

The courses are taught by faculty from the physical and life sciences, the social sciences, the applied sciences, and the humanities. Teaching and research examine “negative” peace—dysfunctional human cultural, social, and economic organization—and “positive” peace—successful human enterprises that result in justice, harmony, and reconciliation. Manhattan College offers Peace Studies as a major or minor field of study leading to the B.A. degree, and as a Certificate program for those who have already earned a bachelor’s degree. Many students interested in Peace Studies pair it with another academic discipline, and complete a double major. Peace Studies is housed in the School of Arts, but is also available as a major or minor for students in the Schools of Science and Engineering, and is possible as a minor for students in the Schools of Education and Business.

Requirements:

Majors must take 30 credits, including the following: Peace 201, a Senior Seminar (usually Peace 401); two courses (not from the same department) from the “Concepts in Peace Studies” list, two courses from the “Past and Present Conflicts” list, field work or an internship, and three additional electives. Students may choose to write a senior thesis, for which they should register for Peace 421-2. Because intercultural communication is so important to
peace, all students are encouraged to develop fluency in a foreign language, and to study or work abroad.

Minors must take 15 credits, including Peace 201 and one course from the “Concepts in Peace Studies” list, one course from the “Past and Present Conflicts” list, and 6 additional credits chosen in consultation with the director. For a Certificate in Peace Studies, a student must take 15 credits, including Peace 201 and one course from the “Concepts in Peace Studies” list, one course from the “Past and Present Conflicts” list, and 6 additional credits chosen in consultation with the director. A minimum grade of C is required for credit toward the major or minor.

**Concepts in Peace Studies**
- GOVT 351 International Relations
- PHIL 238 Philosophies of War and Peace
- PSYCH 321 Social Psychology
- RELS 433 Religious Dimensions of War and Peace
- RELS 434 Non-violent Revolution
- SOC 304 Social Class and Inequality
- SOC 327 Power and Conflict

**Past and Present Conflicts**
- GOVT 251 Global Issues
- HIST 364 Anatomy of Peace
- HIST 307 Genocide and Holocaust
- HIST 362 American Foreign Relations
- HIST 390 Terror and Terrorism
- SOC 301 Social Problems

**PEAC 201. Introduction to Peace Studies.**
An introduction to the nature, scope, and methodology of Peace Studies as well as explore some major contemporary problems which threaten peaceful and just relations between groups, nations or individuals. (Cr. 3)

**PEAC 302. Special Topics in Peace Studies.** Course descriptions will be announced when courses are offered. (Cr. 3)

**PEAC 401. Senior Seminar in Peace Studies.** An in-depth interdisciplinary analysis of specific research and practical problems. Intended to help the student integrate the various courses he/she has taken in Peace Studies. (Cr. 3)

**PEAC 421-422. Independent Study in Peace Studies.** Available for the Peace Studies student who wishes to conduct in-depth research on a specific topic in Peace Studies. May be used for the senior thesis. (Cr. 3, 3)

**PEAC 451-452. Peace Studies Field Project.** Practical, off-campus training in conflict resolution, mediation and arbitration, international diplomacy, and social justice projects. Specialized work at the American Arbitration Association, the United Nations, Educators for Social Responsibility, the American Friends Service Committee, Pax Christi, and other organizations involved in peace and social justice activities. International opportunities available. (Cr. 3)

**BIOL 223. Ecology.** Introduction to the study of the distribution and abundance of organisms. Survey of ecological principles at the level of individuals, populations, communities, and ecosystems with emphasis on quantitative analysis. (Cr. 3)

**COMM 340. Media Criticism.** A critical analysis of the mass media including major theories and research in the field. The course explores media institutions, content, and economic structure and also offers an in-depth investigation into media effects and influence on individuals, society, and culture. (Juniors and Seniors only). (Cr. 3)

**COMM 371. Intercultural Communication.** A study of the basic principles of intercultural communication and the impact of culture on one’s perceptions, beliefs, meanings, and communication. (Cr. 3)

**ECON 332. Environmental Economics.** An analysis of the relationship between social behavior, environmental degradation, economic principles and public policy. Topics include pollution, extinction, sustainability, population growth, global warming, acid deposition, hazardous waste, poverty, and health. This course also considers the viability and success of public policies designed to alleviate the environmental problems. **Prerequisite:** ECON 201, 202. (Cr. 3)
ECON 334. International Economics. A study of international trade and financial relationships. Topics covered include theory of international trade, public and private barriers to trade, commercial policy of the U.S., regional economic integration, foreign exchange markets, balance of payments, disequilibrium and the adjustment process, international monetary systems, and economic development of the developing nations. Prerequisites: ECON 201 and 202.

(3)

ECON 335. Political Economy. This course deals with determinants of economic growth and development from a global perspective. The political and legal environment will be given attention alongside economic factors. Issues facing transitional and developing economies will be given special focus. Prerequisites: ECON 201.

(3)

ECON 422. History of Economic Thought. A historical and analytical perspective on the developments of economic ideas and the major schools of thought. Special attention will be given to important economic thinkers such as Adam Smith, John Stuart Mill, Karl Marx and Alfred Marshall. The purpose is to understand why economics is what it is today. Prerequisites: ECON 201, 202.

(3)

ENGL 265. Contemporary Literature. A comparative study of selected literary texts by African, Asian, Caribbean, and Latin and North American writers responding to the impact of Western colonization and imperialism. (3)

ENGL 279. Literature and the Environment. The study of the important role the environment plays in literary texts. Themes may include the relationship between the urban and the wild, the role of animals in human affairs, and the question of human stewardship of this planet. (3)

ENGL 347. Literature and War. A study of the representation in fiction, poetry, drama, and film of such catastrophic human conflicts as the World Wars and the Vietnam War. (3)

ENGL 348. Contemporary Fiction (World Literature). A sampling of world fiction (in English) written in the last fifteen years. Authors employ widely divergent techniques to address the issues of colonialism, history, politics, social change, and art. Emphasis on the novel as an arena for heterogeneity of sensibilities and the clash of ideologies. Spring. Alternate years. (3)

GOVT 223. Environmental Politics. Analysis of US and global environmental politics and major issues involved in ecological sustainability and development, including resource management, pollution control and climate change.

GOVT 251. Global Issues. This course will highlight the interrelatedness of economic, ecological, and cultural events as they affect nations, regions, and the global community. The course is designed to illuminate the complex nature of world events and the nature of international studies. (3)

GOVT 332. Government and Politics of Central and Eastern Europe. This course explores the remarkable changes in this region from the end of World War II, through the Soviet socialist regimes, to the startling movements for change in 1989, to the still young nations of today. (3)

GOVT 343. Government and Politics of the Middle East. Comparative study of the political organizations, institutions and groups in the Middle East. Discussion of politics in selected countries, as well as analysis of national and regional conflicts and the roles of the major powers in the region. (3)

GOVT 344. The Politics of the Contemporary Caribbean. Comparative study of the politics of Caribbean nation-states. Their colonial heritages, political cultures, ideologies, institutions, groups, and changing development strategies including regional integration efforts will be analyzed. (3)
GOVT 345. The Dynamics of Latin American Politics. Comparative study of the political organizations, institutions, and groups in Latin America and the Caribbean. Discussion of politics in selected countries, as well as analysis of national and regional conflicts and change and the role of the United States in the region. (Cr. 3)

GOVT 346. Contemporary African Politics. Impact of traditional culture, Western colonialism and neocolonialism on contemporary African ideologies, political organizations, institutions, and groups. Nation-building strategies for overcoming underdevelopment and dependence. (Cr. 3)

GOVT 351. International Relations. Analysis of various factors underlying war, peace, diplomacy, economic policy and other means by which international actors conduct their relations with one another. (Cr. 3)

GOVT 352. International Organizations. The nature, functions, operations, and politics of the United Nations and global, regional and specialized international bodies. (Cr. 3)

GOVT 412. Seminar: Women in Politics. The struggles of 19th Century feminists, the suffrage amendment movement and the contemporary women’s movement as political action. Urban/metropolitan women as vanguard of the mid 20th century (Third Wave) American women’s movement. Cross-cultural, cross-national comparisons or the concerns that mobilize women, their attainment of political power, and the impact of their activities on public policy. (Cr. 3)

GOVT 420. Seminar: Conflict Resolution. Analysis of sources of conflict and study of methods of conflict management and resolution at interpersonal, neighborhood, national, and international levels. (Cr. 3)

GOVT 426. Seminar: The Politics of Race, Ethnicity and Class in the United States. Analysis of the “ignoble paradoxes” of American freedom and democracy that are embodied in Indian genocide, African enslavement, social annihilation, white supremacist ideologies and racism. A study of leaders and mass movements that pushed united States’ society and its political institutions in the direction of greater racial, ethnic, and class equality and justice. (Cr. 3)

GOVT 457, 458. Model United Nations. A hands-on, participatory experience in which students acquire expertise on a country which they will represent at the five-day National Model United Nations Conference in New York City. The UN simulation is designed to reinforce the basic principles of the world organization, such as maintaining international peace and security, developing better relations among nations based on respect, equal rights and self-determination of peoples and the adjustment and settlement of international disputes. Prerequisite: GOVT 352. and/or permission of the instructor. (Cr. 3)

HIST 307. Genocide and Racism. This course investigates the emergence of modern racism and its expression as genocide. In-depth examinations of the events in Armenia, Rwanda, Bosnia, East Timor, Cambodia, and Darfur complement an exploration of the German attempt to annihilate certain groups like the Jews during World War II. Recommended for Education majors to satisfy state education laws in New York and New Jersey that require the teaching of the Holocaust in all schools. (Cr. 3)

HIST 313. Vietnam to the Philippines. Political, social, economic change, and the kaleidoscope of outside intervention in modern Southeast Asia since the founding of Singapore in 1819. (Cr. 3)

HIST 319. The Crusades. This course examines the crusading energy of the High Middle Ages. Focus will be on the medieval imagination of the Latin West as Christendom and attacks on threats to that identity. Topics will include the strengthening of the papacy; the growth of chivalry; the history of Jerusalem and its crucial holy sites; relations between Christendom and the Byzantine Empire; the Islamic world; the Reconquista; the Albigensian Crusade; the rise of anti-Semitism; and the military orders. (Cr. 3)
HIST 326. Diplomatic History of Europe Since 1815. The international relations among the European states from the Congress of Vienna through the era of Imperialism and the 20th century's two world wars. (Cr. 3)

HIST 355. Eastern Europe in Modern Times. A survey of the history of Eastern and Central Europe, the area between Germany and Russia, from the end of World War I until the present day. The countries of the region will be examined both comparatively and individually to identify the economic, social, cultural, and national forces which have shaped their developments. (Cr. 3)

HIST 357. Nazi Germany and the Holocaust. This course explores the rise of the Nazis to power, their governance of Germany, their conquests, and their defeat. Special emphasis will be placed on the Nazis' treatment of various minorities. Their ideology and practical issues shaping the decisions and actions of both leaders and ordinary Germans will be examined. The Holocaust will be situated throughout in its contemporary context and understood through the eyes of perpetrators, victims, survivors, and bystanders. (Cr. 3)

HIST 362. American Foreign Relations, 1900 to the Present. "The American Century." The rise of America to world power. Relations with other countries before, during and between the world wars, in the Cold War, and in the post-Soviet era including politics toward Latin America, the Middle East, Africa and Asia. (Cr. 3)

HIST 383. The Civil War and Reconstruction. The causes of the Civil War: economic and political, legal and constitutional, ideological and moral. The great people, the great battles, and the great events. The results and the cost of the war, human and economic. Reconstruction, racism and segregation. (Cr. 3)

HIST 390. Terror and Terrorism: The Uses of Political Violence. This course examines the major ideas and problems associated with terror and terrorism from the French Revolution to the present and considers the historical development and role of political violence both by and against the state in contemporary society. (Cr. 3)

INTL 201. Global Issues. This course will highlight the interrelatedness of political, economic, ecological and cultural events as they affect nations, regions, and the global community. The course is designed to illuminate the complex nature of world events and the nature of international studies. (Cr. 3)

MGMT 415. Human Behavior in the Organization. Individual and social behavioral processes and their relevance to managers. Behavioral sciences concepts and techniques for maximizing both the contribution of human resources toward organizational goals and the personal growth and fulfillment of organizational personnel. Prerequisite: MGMT 201. (Cr. 3)

MGMT 450. The Management of Behavioral Dynamics. Managerial implications of alternative methods for dealing with organizational confrontation, change, and intra- and intra-group conflict. Extensive experiential learning techniques utilized. Prerequisite: MGMT 415 or permission of instructor. (Cr. 3)

PHIL 201. Ethics. An introduction to moral decision making emphasizing the criteria used in assessing moral problems and dilemmas. (Cr. 3)

PHIL 238. Philosophies of War and Peace. Historical-conceptual consideration of war, peace, causes, and conditions of war and peace; social strife, racism, sexism, attitudes toward war and peace, peaceful coexistence, pacifism, non-violence as techniques of struggle. (Cr. 3)

PSYC 321. Social Psychology. A study of the processes by which the behaviors, thoughts, and feelings of the individual are influenced by his/her social environment. Topics include: social perception and attribution, attitude development and change; interpersonal attraction and interpersonal relations such as friendship. (Cr. 3)

PSYC 344. Group Dynamics. An introduction to small group processes, including theory, research, and application. Topics include leadership, power, decision-making and conflict. (Cr. 3)
RELS 336. Native American Religions. The study of the principal rites, stories, and religious symbols of the Native Americans of North America through the study of selected tribes or nations. Various research approaches and popular media portrayal of the “Indians” will also be discussed. (Cr. 3)

RELS 354. Buddhism: Its Development and Interpretation. A study of the principles of Buddhist thought together with a reading of various Theravada and Mahayana texts. The course will address problems of Buddhist ethical interpretation, historical development and cultural transformation. (Cr. 3)

RELS 355. Islam. An introductory survey of the origins and religious teachings of Islam, with special attention to the Islamic views of providence, revelation, worship, and moral obedience. Community, social justice, and revolutionary thought in the contemporary Islamic world will also be discussed. (Cr. 3)

RELS 357. Religions of China and the Far East. A survey of the religious traditions of the cultures of the Far East. Examines Confucianism, Taoism, and Far Eastern forms of Buddhism as well as the cultural background, beliefs, practices, art, and literature of these religions. (Cr. 3)

RELS 358. Religions of India. A survey of the religions that began in India: Hinduism, Jainism, and Buddhism. Traces the historical development of these religions from the time of the Vedas to Mahatma Gandhi. The survey will focus on the religious beliefs, practices, and literature of these different groups. (Cr. 3)

RELS 361. Yoga: Philosophy, Praxis and Art. A cross-cultural and interdisciplinary introduction to the nature of yoga—its philosophical underpinnings, its iconographical representations and its practices. Materials will be drawn from Hinduism, the Buddhas of Tibet and Japan, and Carmelite Christianity. In addition, contemporary neuropsychological approaches will be explored. The course will be enhanced by field trips that explore the art and practices of these areas. (Cr. 3)

RELS 403 Ethics in the Workplace. An investigation of the ethical challenges, from the personal to the global, that arise in the context of the workplace. Texts will feature case studies and analysis of issues ranging from honesty and fidelity to consumption patterns, organizational structure, and corporate ethos. Students will be introduced to theories in both philosophical and theological ethics that will provide critical tools to help determine a coherent and defensible ethic for their working lives. (Cr. 3)

RELS 404. Religion and Social Justice. The role of religion in the economic, political, and cultural life of the underclass in New York as interpreted through biblical insight and Roman Catholic social teaching. Site visits to such places as homeless shelters, social action groups, Wall Street, inner-city churches, the United Nations. (Cr. 3)

RELS 405. Urban America: Crisis and Opportunity. An interdisciplinary, service learning course. Sociological, political science, economic analysis of urban poverty, combined with reflections on Catholic social teaching, provide the framework for student-volunteer work at various Bronx-based community organizations. (Cr. 3)

RELS 411. Women in Western Religion. An exploration of the field of women’s studies in religion as it intersects with new understandings of God, text, and tradition emerging within Judaism, Christianity, and Islam. The course will look at the roles of women within these three traditions and consider the question of how people bring about religious change. (Cr. 3)

RELS 433. Religious Dimensions of Peace. A theological and ethical inquiry into the major Jewish and Christian responses to war: pacifism, just war, and crusade. Various religious anthropologies are considered as possible ethical bases for peace in today’s world. Contemporary relevance of Reinhold Niebuhr, Mohandas K. Gandhi, Martin Luther King, Jr. and Cesar Chavez. (Cr. 3)
RELS 434. Non-Violent Revolution. A study of the theory and practice of non-violence as found in select contemporary leaders: Mohandas K. Gandhi, Martin Luther King, Jr., Cesar Chavez, Vinoba Bhave, Danilo Dolce, and Helder Camara. Examinations of the theological and ethical foundations of non-violent revolution. (Cr. 3)

RELS 436. Theologies of Liberation. An examination of the theologies of liberation in Africa, Asia, Latin America, and among Afro-Americans and women in the United States; dialogue among these groups; response of first-world theologians; relation between religion and politics; place of activism in the life of a religious person. (Cr. 3)

RELS 440. American Christian Social Ethics. A theological and historical analysis of the thought of Walter Rauschenbusch, John A. Ryan, Reinhold Niebuhr, Martin Luther King Jr., and Paul Hanley Furley. A study of their impact on American religious, political, and economic institutions. (Cr. 3)

RELS 441. Sexuality and the Sacred. Explores some ways in which different religious traditions have perceived the relationship between sexuality and religion. Examines the religious roots of our own cultural attitudes toward sexuality and sex roles and looks at some contemporary attempts to rethink the relationships between sexuality and spirituality, and between women and men. (Cr. 3)

RELS 442. Islam and Politics. An investigation into the relationship between religious and political thought of the peoples of Islam. Selected Quranic texts and Hadiths will be studied for their political content. The history of political Islam and the contemporary Islamic scene throughout the world will be featured elements of the course. (Cr. 3)

SOC 301. Social Problems. A critical analysis of the causes and impact of social problems using the major theoretical approaches developed in sociology. Topics include poverty, the environment, corporate power, war, et al. (Cr. 3)

SOC 302. Race and Ethnicity. Theories, concepts, and research findings from sociology and anthropology as they relate to dominant and minority relations in various countries. Sociological study of conflict, prejudice, and discrimination. (Cr. 3)

SOC 304. Social Class and Inequality. Analysis of the class structure of the United States. Economic and noneconomic characteristics of different classes. How class status affects one’s life (physical and mental health, food and shelter, education, crime, and political power). The factors influencing what class one ends up in adulthood. The impact of welfare reform. Variations in class inequality across societies and across different time periods in the U.S. Varying explanations of and solutions to class inequality. (Cr. 3)

SOC 327. Power and Conflict. Analysis of the nature of power as experienced and expressed in different social, historical, and cultural contexts. Different theories of the distribution and exploitation of political, economic, and social power in local, regional, national, and global contexts. Different mechanisms used by dominant groups to subjugate others. The social organization, tactics, goals, and impact of grass-root movements by exploited peoples, e.g. women, minorities, immigrants, laborers. Varying proposals to identify and respond to the many social guises of hegemony. (Cr. 3)

SOC 328. Societies and Cultures of Latin America. A study of the native and contemporary cultures of Latin American societies from an anthropological perspective. Analysis of the processes of socio-cultural change and the external forces affecting Latin American cultures. (Cr. 3)
PHILOSOPHY (PHIL)

Dr. Seamus Carey
Chair of the Department

Requirements for a Major in Philosophy:
A minimum of thirty credits in philosophy courses, which normally should include either LLRN 205, PHIL 211, PHIL 201 or their equivalent, PHIL 213 (Intro to Logic), PHIL 215 (Greek Philosophy), one major author course from the ancient or medieval period (309, 310, 311, 312, or 313), and one major author course from the modern period (317, 321, 322, 323 or 325). 203 may be substituted for either 311, 312 or 313.

Requirements for a Minor in Philosophy:
A minimum of fifteen credits in philosophy courses, which normally should include either LLRN 205, PHIL 201, PHIL 211 or their equivalent (for transfer students), PHIL 215 (Greek Philosophy), and any three other philosophy courses.

201. Ethics. An introduction to moral decision making emphasizing the criteria used in assessing moral problems and dilemmas. Required of students in the School of Business. (Cr. 3)

203. Readings in Medieval Philosophy. Medieval thought generated a variety of philosophical perspectives. To understand the distinctive character of the medieval philosophical pluralism, selected texts will be examined in Augustine, Boethius, Abelard, Anselm, Bonaventure, Aquinas, Ockham. (Cr. 3)

211. Introduction to Philosophy. The major theoretical and practical issues raised by the classical philosophers, especially Plato, Aristotle, and later figures. (Cr. 3)

213. Introduction to Logic. Fundamental principles of correct reasoning; logical validity; deductive argument; formal and informal fallacies; problems of semantics and definition; problem of induction and scientific method. Required for majors. (Cr. 3)

215. Greek Philosophy. The major theoretical and practical issues raised by the classical Greek Philosophers, especially the pre-Socratics, Plato, and Aristotle. Required for majors and minors. (Cr. 3)

220. Philosophy of Religion. Symbols and myths in religious experience; arguments for believing or not believing in God; the problem of evil; critiques of religion as projection, opiate or illusion. (Cr. 3)

230. Philosophy of Law. Theories of law; natural law versus legal positivism; legal paternalism; the right to privacy; legal reinforcement of moral standards; justice and fairness; legal responsibility; theories of punishment. (Cr. 3)

236. Philosophy and Psychoanalysis. A concentration on selected major writings of Freud so as to achieve an understanding of the complexity of his thought before undertaking any kind of disciplined criticism in the light of oft-concealed philosophical presuppositions. (Cr. 3)

238. Philosophies of War and Peace. Historical-conceptual consideration of war, peace, causes and conditions of war and peace; social strife, racism, sexism, attitudes toward war and peace, peaceful coexistence, pacifism, non-violence as techniques of struggle. (Cr. 3)

309. Plato. A study of selected Platonic dialogues—including the Protagoras, Gorgias, Symposium, Phaedo and Phaedrus—in connection with major themes: knowledge, beauty, love, immortality and political life. (Cr. 3)

310. Aristotle. A critical and textual concentration on Aristotle’s major ethical, political and metaphysical writings in the light of a long tradition of conflicting Islamic, Jewish and Christian interpretations. (Cr. 3)

311. Augustine. A critical examination of the life and thought of this seminal figure in Christian philosophy who attempted to harmonize faith and reason; his links to Platonism, Stoicism, and contemporary existentialism. (Cr. 3)

312. Aquinas. A critical examination of the life and thought of the great scholastic philosopher and theologian; his links with Platonic, Aristotelian, Augustinian, and contemporary Catholic thought. (Cr. 3)
313. Dante. A study of De Monachia and the Divine Comedy in the light of the philosophical ideas woven into the very fabric of the deeply moral-political spirit of this philosophical poet. (Cr. 3)

317. Rousseau. Rousseau’s treatment of the character, genesis and consequences of civilization; the interaction of organized striving by human beings to change both their physical environment and themselves. (Cr. 3)

321. Kant. A concentrated textual-critical analysis of major sections of the three Critiques with the aim of achieving an understanding of Kant’s system in its major manifestations: theory of knowledge, metaphysics, moral philosophy and aesthetics. (Cr. 3)

322. Hegel. An exploration of the mind of Hegel by critical readings of the Lectures on the History of Philosophy and an examination of the pivotal Phenomenology of Spirit. (Cr. 3)

323. Nietzsche. The critique of many of the basic assumptions of civilized man in the areas of philosophy, art, morality and religion. The Ubermensch (Superman) as the creative outsider in the undermining of existing values and the establishing of new attitudes. (Cr. 3)

325. Marx. A study of the genesis and development of Marx’s philosophy as a framework for understanding his theories of history and capitalism. (Cr. 3)

330. American Philosophy. A critical analysis of the classical American concept of experience and pragmatism in its manifold modalities as exhibited in three major figures: Peirce, James and Dewey; an examination of the idealism of Royce. (Cr. 3)

334. Existentialism. An exploration of the major themes in the writings of Kierkegaard, Nietzsche, Camus, Beauvoir, Sartre, Weil and others, with emphasis on their religious, social, political and economic implications. (Cr. 3)

335. 20th Century Philosophy. The development of major movements in 20th Century Philosophy such as phenomenology and existentialism beginning with Husserl, Heidegger, Merleau-Ponty, Levinas, Gadamer, and Habermas. (Cr. 3)

342. Chinese and Japanese Philosophies. The role of filial piety and ancestor worship in perpetuating familial and social continuity; the Confucian union of nature and culture in the harmonious man; the Taoist emphasis on privacy in the midst of an overstructured world; Legalism as the first coherent totalitarian political philosophy; the Japanese sense for beauty. (Cr. 3)

350. Philosophers on Race, Class, and Gender. An examination of theories of racial, cultural, class and gender superiority presented by traditional philosophers with a contemporary response. (Cr. 3)

351. Philosophers on Education. An examination of conflicting philosophies of education to render humans either “civilized” or to develop their “true” nature. Highly recommended for students in the School of Education. (Cr. 3)

352. Philosophers on Sexuality, Love, and Friendship. An examination of the views of Plato, Aristotle, Nietzsche, Freud, and other major thinkers on these themes; some contemporary perspectives. (Cr. 3)

374. Western Political Thought. Introduction to Western political theory through examining the written dialogue (between philosophers) which has contributed to what we know as the canon, on the state and society in the West. (Cr. 3)

399. Topics in Philosophy. A seminar on a single philosopher, topic, or period. The subject will vary from semester to semester. Open to non-majors as well as majors. (Cr. 3)

420. Independent Study. Individual study of a philosopher or topic area with a member of the department. Open only to students majoring in philosophy who meet the requirements set by the chair of the department and who secure the consent of the individual instructor. (Cr. 3)
PHYSICAL EDUCATION AND HUMAN PERFORMANCE. (PHED)

Dr. Shawn R. Ladda
Chair of the Department

Requirements for a Major in Physical Education or Exercise Science appear on pages 126-127 of this catalogue.

Aquatics

Physical Education majors are required to take at least one swimming class.

103. Beginning Swimming. The beginning skills for basic water safety and knowledge in order to insure reasonable safety in, on, or about the water. (Cr. 1)

104. Intermediate Swimming. The continuing development of the elements of proficient skills in all styles of swimming. (Cr. 1)

401. Lifeguard Training. The development of skills and knowledge for duties required of a lifeguard. American Red Cross Life Guarding Certification. Screening of water skills. Certification Fee. (Cr. 1)

100. Introduction to Teaching Physical Education. Orientation to the field of teaching physical education in diverse school settings. Exposure to professional organizations and requirements for New York State teacher certification. Field visitation required. (Cr. 2)

101. Team Sports I. Instruction in the fundamental skills, techniques, teaching methods, safety and coaching strategy of soccer, lacrosse, handball, and floor hockey. (Cr. 2)

102. Introduction to Exercise Science. Orientation to the field of exercise science. Exposure to professional organizations and various professional career options. Field visitation required. (Cr. 2)

113. Team Sports II. Instruction in the fundamental skills, techniques, teaching methods, safety and coaching strategy of football, softball/baseball, volleyball, and basketball. (Cr. 2)

110. Personal Wellness. A study of the diversified nature of health and wellness as it relates to everyday living by examining vital health areas and issues relevant to the concerns of the student. Identification and reporting suspected child abuse and maltreatment; prevention of child abduction; preventing alcohol, tobacco and other drug abuse; safety education including fire and arson prevention and satisfaction of the S.A.V.E. requirement are included in this course. (Cr. 3)

114. Water Sports. Fundamental skills and techniques in canoeing, sailing and boating. Offered in camp. Fee for room and board. (Cr. 1)

116. Leisure Sports and Activities. Instruction in the fundamental techniques, teaching methods, and safety of leisure sports and activities. Fitness assessment administered. (Cr. 1)

118. Jazz Dance. This is an introductory class designed to meet the needs of the novice dancer by summarizing a substantial body of basic dance techniques and principles. (Cr. 1)

120. Outdoor Adventures. Designed to offer both physical and mental challenges through participation in outdoor educational activities. Offered in camp. Fee for room and board. (Cr. 2)

209. Standard First Aid and Responding to Emergencies. Provides essential emergency care skills in basic first aid and cardio-pulmonary resuscitation. ARC certification applicable for individuals in pre-med, nursing, teaching and allied health professions. Certification Fee. (Cr. 1)

213. Quality Physical Education for Elementary School. Components of a quality program are addressed and the skill theme/movement concept curricular approach is connected to the National/State Standards. The course focuses on teaching skills (e.g., content development, reflective teaching, assessment, etc.). Fieldwork required. (Cr. 3)
217. Motor Learning and Performance. Fundamental principles of motor learning and supporting literature/research emphasized. A combined conceptual model of human performance with a problem-based learning approach is taken. (Cr. 3)

Sport Skills

Fundamental skills, techniques, teaching methods, safety and coaching strategy.

337. Track and Field and Cross Country. (Cr. 2)

228. Gymnastics and Tumbling. Basic gymnastics and tumbling skills. Methods of teaching and safety. (Cr. 2)

231. Anaerobic Conditioning. Development of prescriptive individualized exercise programs for the enhancement of strength, power and muscular endurance for specific sports. (Cr. 2)

237. Hiking. The fundamentals of hiking and orienteering will be taught. The many trails of the Palisades Interstate Park will provide the laboratory experience. Class will meet on selected Saturdays and/or Sundays for a total of thirty hours. (Cr. 2)

244. Tae Kwon Do-Karate and Self Defense. Instruction and participation in basic martial arts skills necessary for the enjoyment as a sport and as a self-defense. $25 uniform fee. (Cr. 1)

245. Yoga. Instruction and participation in the basics of Yoga including Asana (postures), Pranayama (breathing techniques), and Meditation. (Cr. 2)

246. Aerobic Conditioning. Theory and practice of a variety of aerobic exercise modes. (Cr. 2)

303. Sports Psychology. An analysis of the psychological operative in sports. (Cr. 3)

305. Quality Physical Education for Secondary Schools. Components of a quality program are addressed and various curricular models are connected to the National/State Standards. The course focuses on teaching skills (e.g. content development, reflective teaching, assessment, etc.). Fieldwork required. Prerequisite: PHED 213. (Cr. 3)

318. Athletic Training I - Care and Prevention of Athletic Injuries. A practical study and application of basic training room procedures, with emphasis on protective taping. $25 materials fee. Prerequisites: BIOL 207-208. (Cr. 2)

327. Rhythmic Activities. The analysis and performance of basic fundamental movement skills and rhythmic activities for creative and choreographed dance. (Cr. 2)

331. Contemporary Activities. Instruction in the fundamental techniques, teaching methods, and safety of contemporary activities. (Cr. 2)

342. Aerobic Dance. Instruction and participation in low impact, high impact and step aerobics. (Cr. 1)

375. Special Topics. Topics of current interest to physical education majors. Subject matter and prerequisite courses will be announced in advance of semester offering. (Cr. 3)

403 Introduction to Alcohol & Substance Abuse. An overview of the etiology and treatment of various addictive disorders. Attention will be given to alcoholism, substance abuse, risky sexual behavior, etc., and how they affect the brain, individual cognitive functioning, attitude, behavior, perception, and the family nucleus. Physical illness commonly found among this population, such as AIDS, will also be discussed. Specific emphasis will be placed on the pharmacological effects of alcohol and substances of abuse. (Cr. 3)

405. Research Seminar. The development and writing of a research proposal related to wellness and human movement sciences. (Cr. 2)

411. Principles and Philosophy of Physical Education and Athletics. Scientific basis of physical education principles and their relation to general education. (Cr. 2)
412. Organization, Administration, and Human Relations. Principles and Policies for the organization, supervision and administration of the physical education and athletic program and plant. (Cr. 2)

414. Measurement and Evaluation in Human Performance. Basic statistical concepts to organize, assimilate, and reduce information for analysis (SPSS used to analyze data). Apply basic statistical techniques, reliability, and validity to practical problems in the field of human performance and movement. (Cr. 3)

*415. Supervised Practice Teaching in Secondary Schools. Observation and supervised practice teaching in the field of physical education in Secondary Schools. Preliminary interviews and subsequent consultations as arranged by the supervisor. Minimum 170 hours. Prerequisite: PHED 305 and PHED 213. (Cr. 3)

*416. Supervised Practice Teaching in Elementary Schools. Observation and supervised practice teaching in the field of physical education in Elementary Schools. Preliminary interviews and subsequent consultations as arranged by the supervisor. Minimum 170 hours. Prerequisites: PHED 213, 305. (Cr. 3)

418. Biomechanics of Human Movement. A survey of principles derived from the fields of physics, mechanics, and mathematics which influence the performance of motor skills. Two one-hour lectures. Prerequisite: BIOL 309. (Cr. 2)

419. Advanced Exercise Prescription. This course provides the theoretical background necessary to prescribe therapeutic exercise for persons with a wide range of abilities/disabilities. Topics include exercise for coronary artery disease, congestive heart failure, asthma, COPD, chronic fatigue, rheumatoid arthritis, diabetes, elderly/frail elderly, pregnancy, children, elite athletes. (Cr. 2)

421. Therapeutic Recreation. Foundations, principles, programming, current trends and issues in therapeutic recreational services. Field work required. (Cr. 2)

422. Assessment & Curriculum. Students will apply current methods of assessment to short term and long term planning. The inextricable links among a standard-based curriculum, assessment, and effective construction will be investigated. (Cr. 3)

423. Adapted Physical Activity. Foundations of and current issues in adapted physical activity. Emphasizes assessment, planning, instructional strategies, and evaluation for physical activity for students with diverse skills and abilities. Field work required. (Cr. 3)

424. Adapted Exercise and Sport. Analysis of conditions that impact participation in exercise and sport of individuals with disabilities. Principles, adapted equipment, programming, and organization of exercise and sport for individuals with disabilities. Field work required. (Cr. 3)

**428. Professional Practicum I. Supervised field work in a professional setting depending upon interest — Executive Fitness Center, Cardiac Rehabilitation Center, Physical Therapy Center or Youth Development Agency. (120–150 Hours) (Cr. 3)

**Applicants for Professional Practicum must have senior status, an overall index of at least 2.50, and meet physical, mental, speech, and other standards established for the profession. Applicants must consult with chair a full semester before placement. Placement interviews may be required. Practicum assignment must be confirmed the semester before the practicum experience.

430. Stress Management. An interdisciplinary approach to the study of stress and anxiety, causes, physical, mental, emotional characteristics, methods of prevention and management. Open to all students. One three-hour lecture. (Cr. 3)
The Following Courses are Offered to the General Student Body as Electives in Physical Education: Each course involves a body of knowledge, fundamental skills and specific techniques particular to the activity.

101. Team Sports I  (Cr. 2)
103. Beginning Swimming  (Cr. 1)
104. Intermediate Swimming  (Cr. 1)
113. Team Sports II  (Cr. 2)
209. Standard First Aid & Responding to Emergencies & C.P.R.  (Cr. 1)
228. Gymnastic and Tumbling  (Cr. 2)
231. Anaerobic Conditioning  (Cr. 2)
237. Hiking  (Cr. 1)
244. Tae Kwon Do- Karate & Self Defense  (Cr. 1)
246. Aerobic Conditioning  (Cr. 2)
318. Athletic Training I - Care and Prevention of Athletic Injuries  (Cr. 2)
327. Rhythmic Activities  (Cr. 2)
331. Contemporary Activities  (Cr. 2)
337. Track & Field and Cross Country(Cr. 2)
342. Aerobic Dance  (Cr. 1)
401. Lifeguard Training  (Cr. 1)
421. Therapeutic Recreation. Field work required.  (Cr. 2)

PHYSICS (PHYS)

Dr. Bruce Liby
Chair of the Department

Lower Division Requirements: All physics majors must take the following courses in their freshman and sophomore years: Physics 101-102, 214, 223, 224, 250-253; CHEM 101-102 (or 197-198); MATH 201 (or 209) and 203.

Upper Division Requirements for the B.S. Major in Physics:

Track I: PHYS 309, 311, 312, 314, 351-352, 353-354, 410, 443, 450, 453-454. This track is standard preparation for graduate studies in physics.

Track II: Physics 309, 311, 314, 351-352, 353-354, plus six additional credits in physics and eleven additional credits in science, engineering, mathematics or computer science. This track is for individuals wishing to concentrate in an allied science or engineering program.

Upper Division Requirements for the B.A. Major in Physics:

Physics 309, 311, 314, 351-352, 353-354, 441, twelve additional credits in the humanities. The B.A. Physics major program is useful to those interested in careers in such fields as history of science, technical writing, and patent law.

Grade Requirements: For graduation a physics major must have a 2.00 cumulative index in all required physics courses and the elective science and engineering courses. A minimum grade of C is required in all major courses.

The Cooperative 3-2 Program

A track II major may choose to complete the required Physics courses in three years leaving all science and free electives to the senior year. The final two years of the five year sequence may then be spent in Engineering. At the end of the fourth year the student receives the B.S. in Physics and at the end of the fifth year the B.S. in Engineering.
Requirement for a Minor in Physics: 5 courses or 15 credits in approved physics courses.

101-102. Physics I-II. A calculus approach to the basic concepts of mechanics (Physics I) and electricity and magnetism (Physics II). Three lectures and one two-hour laboratory. **Prerequisite or Corequisite:** MATH 103. (Cr. 4, 4)

105-106. Principles of Physics I & II. An introduction to the basic principles and concepts of physics including mechanics, heat, electricity, and magnetism, optics and modern physics. Three lectures and one two-hour laboratory. (Cr. 4, 4)

107-108. Introductory Physics I & II. An algebra based approach to the basic concepts of mechanics, heat, electricity, magnetism, optics and elementary atomic and nuclear physics. Emphasis is on biological applications. Three lectures and one two-hour laboratory. (Cr. 4, 4)

151-152. Introduction to Physics Research. Elementary Research projects for beginning students in physics. Students learn how to pursue an open ended question under the guidance of a faculty advisor. Permission of department chair required. (Cr. 0, 0)

201. Wave Theory of Light and Matter. Intermediate level introduction to electromagnetic waves and the theory of light, geometrical and physical optics, introduction to quantum concepts and the wave nature of matter with applications to the solid state. (Cr. 3)

209. Introduction to Theoretical Physics. Vector Analysis, Matrices and eigenvalue problems, introduction to Partial Differential Equations as applied to physics. Three lectures. (Cr. 3)

214. Electricity and Magnetism. Electrostatics, Magnetostatics, Faraday’s Law, Maxwell’s equations using vector analysis. (Cr. 3)

221. Physics of Digital Devices. The basic physics and selected circuit applications of solid state devices such as the diode, transistor and op-amp as used in digital systems. The lectures will concentrate on the development of band theory and the diode equation from first principles while the lab will concentrate on digital circuit application using TTL and analog IC’s. Three lectures and one two-hour laboratory. **Prerequisites:** Physics 101-102 sequence. (Cr. 4)

223. Physics III. Introduction to the theory of oscillations and waves. Introduction to the special theory of relativity. Introduction to wave mechanics and the Schrödinger equation. (Cr. 3)

224. Physics IV. Elements of thermodynamics and an elementary introduction to condensed matter physics. (Cr. 3)

250. Optics. The nature of light and its interaction with matter. Reflection, refraction, polarization, interference, diffraction and propagation of light through media. Lenses, optical elements and optical devices will be explored via lecture and experiments. One lecture and one 4-hour lab per week. (Cr. 2)

251. Intermediate Laboratory. This laboratory course will complement the material presented in Physics 201. Experiments in mechanical waves, geometrical and physical optics, and modern physics. One three hour period per week. **Corequisite:** PHYS 201. (Cr. 1)

253. Advanced Optics Laboratory. Experiments in optics at an advanced level including measuring the cardinal points of an optical system, optical aberrations, lasers and laser applications, Newton’s rings, interferometry, holography, electro-optics, optical modulation, and matrix optics. (Cr. 1)

309. Mechanics. Dynamics of particles and systems; Gravitation; Rotating Coordinates; Motion of rigid bodies. Lagrangian formulation. Coupled oscillators. Three lectures. (Cr. 3)

311. Atomic and Nuclear Physics. Schrödinger wave theory for atomic structure. Magnetic field effects on atoms. Atomic and molecular spectra. Introductory nuclear physics. Three lectures. (Cr. 3)

312. Quantum Mechanics. Introduction to Quantum theory. One dimensional quantum systems. The harmonic oscillator. Central Potentials. (Cr. 3)

341-342. Topics in Astrophysics. Independent study of topics of astrophysical interest such as Stellar Evolution, Radiation Theory and Stellar Atmospheres, Star Clusters and Galactic Rotation, Interstellar Matter. Approval of Chair necessary. (Cr. 3, 3)

351. Modern Physics Laboratory I. Experimental verification of properties of atomic structure. One three-hour period. (Cr. 2)

352. Modern Physics Laboratory II. Advanced experiments in atomic and nuclear physics. Properties of radioactivity. One three-hour period. (Cr. 2)

353, 354. Research Projects in Physics. Introductory level student research projects in either experimental or theoretical physics carried out under the guidance of a faculty member. (Cr. 2, 2)

410. Advanced Theoretical Physics. Complex variables, Integral Transform Methods and Green’s Function Methods in theoretical physics. Three lectures. (Cr. 3)

414. Electromagnetic Radiation. Dielectric and Magnetic materials, electromagnetic waves in free space and media. Dipole radiation. (Cr. 3)

415. Statistical Mechanics. Statistical mechanics of many body systems. Equilibrium and non-equilibrium systems. Phase transitions. (Cr. 3)


441-442. Senior Thesis. An independent study program in experimental or theoretical physics to provide an opportunity for the scientific development of advanced undergraduate physics majors. Minimum of six hours a week devoted to an organized study program is required. Permission of department chair necessary. (Cr. 3)


450. Seminar. Single and sequential lectures on special topics in physics. Track I majors are required to present a research paper on either a theoretical or experimental topic in the spring semester of senior year. (Cr. 1)

453-454. Experimental Physics I-II. Experience building and using apparatus such as electronic instrumentation, vacuum equipment, LASERS, magnets, detectors, scalars, etc. A blend of classical and contemporary experiments. (Cr. 2, 2)

PSYCHOLOGY (PSYC)

Dr. Jay Friedenberg,
Chair of the Department

The Psychology Department offers a program that emphasizes both the humanistic and scientific aspects of psychology. The psychology major is designed for students: (1) who desire to study and understand human behavior, (2) who want to enter psychology as a profession, or (3) who regard psychology as liberal arts preparation for further training in the professions. In order to meet the diverse needs of students, the Department offers both a B.S. and a B.A. degree and optional concentrations in Clinical/Counseling, Cognitive, Developmental, Industrial-Organizational, and Social Psychology. There is also a specific track for Education students concentrating in Psychology. These degrees and options are discussed in greater detail below.
The goals of the department are to provide students with the opportunity:

- To learn psychological concepts, principles, theories, and research strategies.
- To develop skills in analyzing, evaluating, and applying psychological principles and theories to their professional preparation and personal lives.
- To conduct independent study, research, and internships.
- To explore career opportunities in psychology and related areas.

**Majors:** Every student who wishes to declare a major in Psychology should consult with the chair. Students must receive a minimum grade of C in a psychology course for the course to be credited to their major. Students who are considering graduate school should consult with faculty members during their junior year. All students interested in graduate study are advised to take the Graduate Record Examinations. As part of the department's outcomes assessment initiative, all psychology majors may be required to complete a standardized psychology achievement exam during their senior year, as well as surveys measuring department and instructor effectiveness.

**Requirements for a Major in Psychology:** All students must complete 30 credits in Psychology for a B.A. and 33 credits in Psychology for a B.S. The B.S. also requires several additional credits in science as is described below. Specific requirements for each degree are as follows:

I. The Psychology Core. All psychology majors must complete the following four courses in order.

- Introduction to Psychology I. (LLRN 123 or PSYC 203)
- Introduction to Psychology II. (PSYC 209)
- Statistics. (PSYC 205)
- Research Methods I (PSYC 315)

II. The Psychology Distribution. All Psychology majors must take one course from each major field in psychology as is described below.

- Clinical/Counseling Psychology requirement: Abnormal Psychology (PSYC 421*) or Psychological Testing (PSYC 302*).
- Social Psychology requirement: Social Psychology (PSYC 321*) or Personality (PSYC 347*).
- Physiological Psychology requirement: Physiological Psychology (PSYC 435) or Sensation and Perception (PSYC 367).
- Developmental Psychology requirement: Psychology of Childhood (PSYC 345) or Psychology of Adolescence (PSYC 346) or Adulthood and Aging (PSYC 320).
- Applied Psychology requirement: Take one of the following: Industrial Psychology (PSYC 373), Organizational Psychology (PSYC 374), Contemporary Psychotherapy (PSYC 437), Health Psychology (PSYC 341), Principles and Techniques of Interviewing and Counseling (PSYC 327), Forensic Psychology (PSYC 257).

*Students wishing to attend graduate school in clinical or counseling psychology are strongly advised to take these classes.

**Additional requirements for a B.S. in Psychology:** In addition to the requirement above, students seeking a B.S. in Psychology must complete the following requirements.

Permission of the Chairperson of Psychology to enter the B.S. program or a math SAT score of at least 600.

- Advanced Research Methods. (PSYC 322).

The following science requirements: General Biology I – General Biology I Lab (BIOL 111-113), General Biology II – General Biology II Lab (BIOL 112-114), Anatomy and Physiology I (BIOL 207), Anatomy and Physiology II (208) and one of the following course pairs: General Chemistry I (CHEM 101) and General Chemistry II (102) or Physics I (PHYS 107) and Physics II (PHYS 108).
B.S. students are also encouraged, but not required, to take Genetics (BIOL 217) and Neurobiology (BIOL 405).

**Requirements for Education students concentrating in Psychology**

All Psychology/Education majors must complete the following courses.

- Introduction to Psychology I (PSYC 203).
- Introduction to Psychology II (PSYC 209).
- Statistics (PSYC 205).
- Research Methods I (PSYC 315).
- Social Psychology (PSYC 321).
- Learning and Cognition (PSYC 340) or Cognitive Science (PSYC 329).
- Motivation and Emotion (PSYC 333).

One of the following options:

**Option A:**
- Child and Adolescent Development (EDUC 303) AND three of the following
  - Behavior Modification (PSYC 216),
  - Psychological Testing (PSYC 302),
  - Psychology of Developmental Disorders and Delays (PSYC 310),
  - Psychology of Family Relationships (PSYC 342),
  - Abnormal Psychology (PSYC 421),
  - Psychology of Women (PSYC 343),
  - Theories of Personality (PSYC 347).

**Option B:**
- Psychology of Childhood (PSYC 345) and Psychology of Adolescence (PSYC 346) and one of the following
  - Behavior Modification (PSYC 216),
  - Psychological Testing (PSYC 302),
  - Psychology of Developmental Disorders and Delays (PSYC 310),
  - Psychology of Family Relationships (PSYC 342),
  - Abnormal Psychology (PSYC 421),
  - Psychology of Women (PSYC 343),
  - Theories of Personality (PSYC 347).

**Optional Concentrations:** In addition to the requirements described above, students who wish to specialize in a specific area of psychology may do so by completing the requirements for one of the concentrations below. These concentrations are optional. Students are not required to complete a concentration.

- **Clinical/Counseling Psychology:** PSYC 421, PSYC 302, PSYC 327, PSYC 437 and one of the following: PSYC 429, PSYC 430, PSYC 322, PSYC 375, PSYC 475.
- **Social Psychology:** PSYC 321, PSYC 347. Take one of the following: PSYC 342, PSYC 343, PSYC 344 and one of the following: PSYC 429, PSYC 430, PSYC 322, PSYC 375, PSYC 475.
- **Developmental Psychology:** PSYC 345, PSYC 346, PSYC 320, and one of the following: PSYC 310, PSYC 429, PSYC 430, PSYC 322, PSYC 375, PSYC 475.
- **Industrial/Organizational Psychology:** PSYC 373, PSYC 374, PSYC 302, and one of the following: PSYC 333, PSYC 341, PSYC 344, and one of the following: PSYC 429, PSYC 430, PSYC 322, PSYC 375, PSYC 475.
- **Cognitive Psychology:** PSYC 340, PSYC 329, PSYC 333, and one of the following: PSYC 429, PSYC 430, PSYC 322, PSYC 375, PSYC 475.

**Requirements for a Minor in Psychology:** 15 approved credits, including PSYC 203 or LLRN 123 and any 12 additional credits. Students wishing to minor in Psychology must consult with the Chair of the department.

**203. Introduction to Psychology I.** A survey of the fundamental concepts of the science of human and animal behavior, emphasizing human development, learning and memory, psychological testing, personality, and abnormal behavior. Not open to students who have taken LLRN 123. (Cr. 3)

**205. Statistics.** Application and interpretation of descriptive and inferential statistics. Topics include measures of central tendency and variability, correlation and regression, student's t-tests, and analysis of variance. Statistical computer packages will be used for data analysis. **Prerequisite:** PSYC 209 (Cr. 3)
209. Introduction to Psychology II. This course will provide students with a fundamental grasp of the application of the scientific method to the study of psychology. Topics include research methodology, biological bases of animal and human behavior, intelligence, problem solving, motivation and emotion. **Prerequisite:** PSYC 203, LLRN 123. (Cr. 3)

216. Behavior Modification. A survey of the principles of learning as applied to selected problems of behavior. (Cr. 3)

257. Forensic Psychology. An analysis of psychological causes of criminal behavior. Topics include antisocial personality, neuropsychological components of criminality, and the interface between psychology and law in areas such as jury selection, sentencing, the insanity plea, eyewitness testimony, and psychiatric evaluation of defendants. (Cr. 3)

All 300 and 400 level courses require PSYC 203 or LLRN 123 or PSYC 209.

302. Psychological Testing. A survey of the various tests available to psychologists, including intelligence, achievement, aptitudes, and personality tests. The student is not trained for clinical interpretations. (Cr. 3)

310. Psychology of Developmental Disorders and Delays. This course provides an overview of developmental disorders, delays, and psychopathology among children. The course will emphasize assessment, diagnosis, and treatment. Students may be expected to perform field activities and child observations. Psychology 345 is a prerequisite for this course. (Cr. 3)

315. Research Methods I. This course examines the application of the scientific method in psychology, focusing on the experimental approach. Laboratory exercises, library research, and writing research reports are required. Prerequisite: PSYC 205. (Cr. 3)

320. Adulthood and Aging. This course will examine the physical, social, emotional, intellectual alterations occurring in adulthood and old age. The fundamental research and theories explaining the stages and developmental tasks of adulthood will be described and evaluated. (Cr. 3)

321. Social Psychology. A study of the processes by which the behaviors, thoughts, and feelings of the individual are influenced by his/her social environment. Topics include social perception and attribution, attitude development and change; interpersonal attraction and interpersonal relations such as friendship. (Cr. 3)

322. Advanced Research Methods. An examination of research methods and techniques in a specialized area of psychology such as cognitive, clinical/counseling, developmental or social. Specialty area will vary and be announced in advance. Prerequisite: PSYC 315.

327. Principles and Techniques of Interviewing and Counseling. In-depth exploration of techniques for establishing a stable working relationship with a client; examination of prominent contemporary approaches to interviewing and counseling from theoretical and practical standpoints. (Cr. 3)

329. Cognitive Science. Cognitive science is the scientific interdisciplinary study of mind. Surveys major theories of mind from different perspectives, including philosophy, psychology, neuroscience, networks, evolution, linguistics, artificial intelligence, and robotics. (Cr. 3)

330. Special Topics in Psychology. New course offerings in any area of psychology. Descriptions of specific topics will be posted in the psychology department. Specific requirements will depend upon the topic. (Cr. 3)

333. Motivation and Emotion. An introduction to human motivation and its interaction with emotions, surveying the research and theories of motivational states such as hunger, sex, affiliation, aggression and of emotions such as love, fear, and anger. (Cr. 3)

340. Learning and Cognition. The course surveys the fundamental operations of the mind as viewed from an information processing perspective. Attention, perception, the representation of knowledge, memory, problem-solving, reasoning, and language are studied. (Cr. 3)

341. Health Psychology. The study of the psychological processes that affect health with a focus on stress and stress management. Topics include: psychological analysis of health-pro-
moting and health-compromising behaviors and psychobiological perspectives on pain management, chronic illness, and terminal illness. (Cr. 3)

342. Psychology of Family Relationships. The study of love, intimacy, and commitment in traditional and non-traditional families. Topics include: dating, communication, sexuality, and parenting. (Cr. 3)

343. Psychology of Women. The major objective of this course is to develop an understanding of and critical thinking about the psychology of women. Topics unique to women's lives, such as menstruation, pregnancy, childbirth, and motherhood, will be explored. Additional topics including gender and sexual development, work roles, abuse, violence, and body image will be analyzed. (Cr. 3)

344. Group Dynamics. This course will investigate how and why groups form and how they are maintained. In addition, topics including group influence, stereotypes, prejudice, decision-making, and conflict will be explored. (Cr. 3)

345. Psychology of Childhood. Study of the physical, cognitive, emotional and social development of the child from conception to adolescence. (Cr. 3)

346. Psychology of Adolescence. Study of the physical, cognitive, emotional and social development of the adolescent. (Cr. 3)

347. Personality. An examination of the research and theories explaining the development of personality and its functioning. (Cr. 3)

360, 460. Independent Study in Psychology. This course is designed to allow psychology majors to pursue an area of special interest in psychology. Students must present a preparatory outline to qualify. Permission of the faculty mentor, department chair, and the Dean of the School of Arts are required at the time of registration. (Cr. 3, 3)

367. Sensation and Perception. This course explores how we see and hear. Topics include: color vision, object perception, perception of depth, size, and motion. Particular attention is paid to Gestalt psychology and the perception of illusions and ambiguous figures. (Cr. 3)

373. Industrial Psychology. The application of psychological principles and methods to the study of individuals and groups in the workplace. Topics include: personnel selection, placement, and evaluation; training and development; and human factors engineering. (Cr. 3)

374. Organizational Psychology. An analysis of human behavior in organizations. Topics include organizational structures and dynamics, motivation and job satisfaction, management styles, and problems in human relations. (Cr. 3)

375, 475. Internship. The internship provides students with the opportunity to explore the ways in which psychologists function in various institutional settings. Students are required to sign a contract which specifies the number of hours or days that will be spent in the institution, the responsibilities that must be fulfilled, and the project that must be completed. A contract signed by the work supervisor, the faculty mentor, the internship coordinator, the department chair, and the Dean of the School of Arts is required at the time of registration. (Cr. 3, 3)

421. Abnormal Psychology. The course surveys a variety of psychological disorders ranging from anxiety to depression and schizophrenia. Current theories regarding their causes are discussed and compared. Approaches to treating the disorders are also covered with particular emphasis on the psychotherapies and associated behavioral techniques. (Cr. 3)

429-430. Research in Psychology. Supervised participation in research design, data collection, statistical analysis, and interpretation of results in conjunction with ongoing research projects in psychology. Permission of the faculty mentor, the department chair, and the Dean of the School of Arts are required at the time of registration. (Cr. 3)

435. Physiological Psychology. An analysis of the biological factors underlying behavior with emphasis on anatomy and functions of the nervous system. Topics include: the structure and function of neurons and the brain and the neural substrates of learning, memory and abnormal behavior. Fall, Spring. (Cr. 3)
437. Contemporary Psychotherapy. Contemporary forms of psychotherapy are discussed and critically evaluated including psychoanalysis, behaviorism, Gestalt, and humanistic therapies. (Cr. 3)

RADIOLOGICAL AND HEALTH PROFESSIONS

Lawrence Hough
Director of the Department

RADIOLOGICAL AND HEALTH SCIENCES (RHS)


275. Patient Care and Nursing Procedures. Basic principles of patient care and nursing procedures for radiological technologists. Fall, Spring. Prerequisite or Corequisite: RHS 205. (Cr. 1)

276. Radiation Therapy I. Basic radiation therapy principles and introduction to oncology and pathology. Spring. Prerequisites: RHS 205 and RHS 315. Corequisites: RHS 275, RHS 320. (Cr. 3)

280, 360, 361, 362, 435, 436. Radiation Therapy Internship I, II, III, IV, V, VI. Clinical Education. Satisfactory achievement of required performance objectives under the direct supervision of qualified technologists in the department of radiation therapy at an affiliated hospital. Prerequisites: RHS 205, RHS 275, RHS 276, RHS 320. (Cr. 4, 2, 2, 4, 2, 2)


315. Radiation Physics. Concepts of introductory physics. Atomic and nuclear structure. Processes of radioactive decay. Production of artificial radioactivity. Fall. Prerequisite: MATH 100 for advanced standing students. Prerequisites: PHYS 107/108 for NMT and RTT students. (Cr. 3)

317. Radiation Biology. The effect of ionizing radiations on biological samples including survival, repair of damage, dose-rate effects, linear energy transfer, oxygen effect, radiobiological effectiveness, hyperthermia, cell cycle effects, molecular check points, mitotic block, repopulation, cancer and mutation risks, tumor and normal tissue effects. Fall. Prerequisite: RHS 315. (Cr. 3)


321. Diagnostic Radiology. Interaction of radiation with matter. X-ray apparatus, the radiologic image and information retrieval systems. CT techniques. Prerequisite: RHS 315. (Cr. 3)

322. Radiotherapy. Radiation dose and delivery systems, interaction of X and gamma rays in the body, dosimetry and implant radiation therapy. (Cr. 3)

323. Nuclear Medicine. Radioactivity and radiopharmaceuticals. Principles of radioactive decay. Imaging instrumentation and systems. Invitro and invivo procedures. Prerequisite: RHS 315. (Cr. 3)

324. Diagnostic Ultrasound. Physics of ultrasounds as applied to biological systems. The transducer and the ultrasonic field. Pulse-echo and Doppler techniques. Other modes. (Cr. 3)

325. Magnetic Resonance Imaging. Physical principles of nuclear magnetic resonance. Imaging techniques and pulse sequences. Instrumentation and site planning. (Cr. 3)

326. Cross-Sectional Anatomy. Explores cross anatomical, cross-sectional relationships of human tissues, organs and organ systems, including interpretation of CT and MR imaging. Fall. (Cr. 3)
331. Nuclear Medicine I. Basic introduction to nuclear medicine. Theory of in-vivo procedures in clinical nuclear medicine. Fall. **Prerequisite or Corequisite:** RHS 205, and RHS 275 and RHS 315. (Cr. 3)

332. Nuclear Medicine II. Theory of in-vivo procedures in clinical nuclear medicine. Radiopharmaceuticals. Radio-immunoassay theory. Spring. **Prerequisite:** RHS 331. **Corequisites:** RHS 301, RHS 340. (Cr. 3)

340, 341, 450, 451. Nuclear Medicine Internship I, II, III and IV. Clinical Education. Satisfactory achievement of required performance objectives under the direct supervision of qualified technologists in the department of nuclear medicine at an affiliated hospital. **Prerequisites:** RHS 205, RHS 275, RHS 315 and RHS 331. (Cr. 2, 4, 2, 2)

355. Radiation Therapy II. Specific site oncology and pathology. Fall. **Prerequisites:** RHS 276, RHS 280. **Corequisites:** RHS 317, RHS 357, RHS 360. (Cr. 3)

356. Radiation Therapy III. Specific site oncology and pathology. Spring. **Prerequisites:** RHS 355, RHS 357, RHS 360. **Corequisites:** RHS 358, RHS 361. (Cr. 3)

357. Radiation Therapy Instrumentation. Principles and operation of radiation therapy instrumentation and equipment. Fall. **Prerequisites:** RHS 276, RHS 280. **Corequisites:** RHS 317, RHS 355, RHS 360. (Cr. 3)

358. Treatment Planning. Principles of treatment planning, dosimetry and calculations. Spring. **Prerequisites:** RHS 355, RHS 357, RHS 360. **Corequisites:** RHS 356, RHS 361. (Cr. 3)

404. PET/CT and Fusion Imaging. Basic physics and instrumentation of diagnostic radiology, especially related to CT (computerized tomography) in diagnostic radiology. Overview of PET physics and instrumentation. Principles of fusion imaging of PET & CT. Spring. **Prerequisite or Corequisite:** RHS 326.

440. Radiation Therapy Colloquium. Presentation of advanced topics, special procedures and changing developments in radiation therapy. This course can only be taken in the last semester of the curriculum. (Cr. 1)

442. Nuclear Medicine III. Theory of advanced and miscellaneous in-vivo imaging procedures in nuclear medicine. Fall. **Prerequisites:** RHS 332, RHS 301, RHS 341. **Corequisite:** RHS 450. (Cr. 3)

460. Nuclear Medicine Colloquium. Presentation of advanced topics, special procedures and changing developments in nuclear medicine. This course can only be taken in the last semester of the curriculum. (Cr. 1)

**Area of Concentration**

These are upper-level division courses and can be taken only with permission of the Program Director or Academic Advisor.

**Health Care Administration**

Prerequisites for these courses are the English and Math requirements and as listed below.

470. Hospital Accounting. Introduction to basic accounting theory and techniques. Fund accounting applicable to hospitals. Payroll accounting, bank reconciliations. Internal control safeguards. Fall. (Cr. 3)


ALLIED HEALTH (AHS)


420. Ethics in Health Care. A study of ethical issues in allied health with emphasis on the individual’s and society’s concerns, responsibilities, and actions. The case study method is emphasized. Fall. (Cr. 3)

425. Practicum in Allied Health. One hundred hours of supervised field work in a professional setting. (Cr. 3)

RELIGIOUS STUDIES (RELS)

Dr. Claudia Setzer
Chair of the Department

Introduction: The Manhattan Religious Studies Department has a two-fold mission. Its first goal is the exploration of specific religious traditions, through their scriptures, theologies, histories, rituals, ethics, and worldviews. Its second goal is the understanding of religion as an element of human experience in relation to contemporary issues – life and death, marriage and sexuality, peace and social justice, religion and culture, science and society and urban problems. Our goals for majors and minors include:

- an ability to critically read and analyze religious texts, a facility with the methods of the academic study of religion, a familiarity with specific religious traditions, and an understanding of the role that religion plays in contemporary life.
- The introductory course focuses on a particular theme while introducing students to some of the research tools used in the academic study of religion. A Roman Catholic concentration is offered and a Roman Catholic cluster in cooperation with other departments may be elected.
- In addition, students may write a six-credit honors thesis for departmental honors recognition.

General Requirements: Students of each school of the College must complete nine credits in Religious Studies, including RELS 110 in the first year and two three-credit elective courses in the following years. Students elect one course from Elective Group A (The Religious Traditions) and one from Elective Group B (Religion and Contemporary Thought).

Requirements for a Major in Religious Studies. Students majoring in Religious Studies must complete RELS 110 and twenty-seven credits in courses numbered 300 and above, including two majors’ seminars (RELS 470). These courses are selected in consultation with the Department Chair. The elective courses will ordinarily include at least one course from each of the following areas of study: biblical studies, Christian theology, ethics, and world religious traditions. For serious reasons, one of the majors’ seminars may be waived by the
Chair and another acceptable course substituted. A minimum grade of C is required for credit toward the major.

Please note: Students intending to major must register with the Department Chair.

Requirements for a Minor in Religious Studies. Students minoring in Religious Studies must complete at least RELS 110 and twelve credits in departmental courses numbered 300 and above, including one majors’ seminar.

Please note: Students intending to minor must register with the Department Chair.

Concentration in Catholic Studies: A student who majors or minors in Religious Studies may choose to concentrate on the Catholic tradition. This concentration focuses on Catholic beliefs, religious practices, moral teachings, and attitudes to other religious traditions, both in terms of the historical development of Catholicism and as subjects of contemporary discussion and debate. An academic and critical program, the Concentration in Catholic Studies aims at providing the interested student with an understanding of the diversity and richness of the Catholic tradition.

Those majoring in Religious Studies who wish to pursue the Concentration in Catholic Studies must complete RELS 110, a biblical course, two majors’ seminars, and eighteen credits from the following: RELS 311, 313, 317, 325, 326, 343, 344, 345, 346, 347, 348, 404, 405, 414, 416, 430, 432, 433, 435, 436 and 440.

Those minoring in Religious Studies who wish to pursue the Concentration in Catholic Studies must complete RELS 110, a biblical course or RELS 311, a majors’ seminar and six credits from the courses listed above.

Religious Studies Honors Thesis: Both majors and those completing a minor with a 3.5 or greater cumulative index are eligible to develop an independent research project (RELS 480) under the supervision of a major reader and a second reader in the fall semester. In the spring, the student will present a completed and revised honors thesis (RELS 481) to the readers. Upon the successful completion of this process, the Religious Studies Department will award the student with honors recognition.

Freshman Year
110. The Nature and Experience of Religion. Religion as a human phenomenon and its transcendent elements. Contemporary approaches to the problem of religious beliefs and faith. A study of the problems of religious language, myth, symbolism and ritual. The relations between religion and culture with special reference to contemporary questions. Offered every semester. (Cr. 3)

Elective Group A: The Religious Traditions
300. Special Topics. An intensive study of a particular religious tradition or topic from within the fields of biblical studies, Christian theology or a world religious tradition. The subject will vary from semester to semester.

Biblical Studies
304. Biblical Storytelling. A study of the short narratives of the Bible, both Canonical and Deuterocanonical. This course will study the books of Ruth, Esther, Jonah, Tobit, and Judith as well as selected chapters of Genesis, Samuel and Judges from literary critical perspectives. (Cr. 3)

305. Understanding The Bible. How the Bible was formed; how to read the Bible. Use of historical and critical methods to examine texts, authorship, literary forms, transmission through manuscripts and translations. (Cr. 3)

307. The Gospel of John. A study of one of the most sophisticated voices in the early Church and the forces that shaped that Church. (Cr. 3)

308. Central Themes of the New Testament. The development of the Christian Scriptures. The history of the earliest Christian communities: the unique messages of the Evangelists and some of the methods used to understand their writings. (Cr. 3)

309. Paul. An exploration of the earliest Christian writings and of the personality and theology of Christianity’s most influential preacher. (Cr. 3)
Christian Theology

311. Jesus. An examination of the picture of the historical Jesus produced by recent critical scholarship of the New Testament; its implications for a contemporary Christology. (Cr. 3)

313. Christian Thought. An investigation of the Christian tradition through a survey of its major themes, including the nature and sources of Christian belief, as well as Christology, ecclesiology, spirituality and theological anthropology. (Cr. 3)

317. The Christian Eucharist. Jesus’ use of the meal to symbolize the Kingdom of God; the fidelity of the early Church to the example of Jesus; the Eucharist and the Protestant Reformation; and modern ecumenical convergence. (Cr. 3)

325. Contemporary Catholicism. An exploration of the spirit, development, and new insights of the Catholic Church in the post-Vatican II era. Doctrinal, moral, ecumenical, and social questions will be examined. (Cr. 3)

326. Contemporary Catholic Theologians. An analysis of the theological presuppositions of contemporary authors; the methodology of research (hermeneutics) as a basis for modern thinking about Catholicism; the role of human and psychological premises underlying understanding of the mystery of Christ. (Cr. 3)

331. Eastern Christianity. A study of the separated and united Churches of the Near East, their history, expansion, preservation of Christian heritage, doctrinal and disciplinary affinity with the Western or Roman Church. Includes a field trip. (Cr. 3)

343. Early Christian Thought. The formation of doctrines, especially those concerning God, Christ, the world, history, and their mutual relationships. Philosophical and political influences which shaped Christianity to the 8th Century. (Cr. 3)

344. The Christian Mystics. A study of the mystical experience in both its theory and practice as found in the lives and writings of the great Christian mystics, past and present. Ample exposure to primary sources and field trips to mystical and contemplative centers constitute the core of this course. (Cr. 3)

345. Medieval Christian Thought. History of Christian thought concerning the nature of humanity and the universe from Augustine through the Scholastics to the eve of the Reformation. Medieval political, theological, liturgical, and artistic expressions of Christendom will be examined. Includes a field trip. (Cr. 3)

346. Reformation and Counter Reformation. An investigation of the concept of reform in Christian thought and the Reformation of the sixteenth century, including its major figures: Luther, Calvin, and Zwingli. The Catholic Reformation of the Council of Trent and its role in the history of Christian reform theology. (Cr. 3)

347. Modern Christian Thought I. A survey of the development of Christian thought during roughly the first half of the twentieth century. Concentration on major representative thinkers. (Cr. 3)

348. Modern Christian Thought II. A survey of the development and growth of Christian thought from the 1960s to the present. Special emphasis on the emerging pluralism of perspectives. (Cr. 3)

World Religious Traditions

334. Sacred Stories. An examination of the mythological dimension in selected primary religious traditions. Emphasis is given to those sacred stories that reveal the religious and cultural assumptions of the tradition. (Cr. 3)

336. Native American Religions. The study of the principal rites, stories, and religious symbols of the Native Americans of North America through the study of selected tribes or nations. Various research approaches and popular media portrayal of the “Indians” will also be discussed. (Cr. 3)

337. The American Religious Experience. An examination of the American religious spirit. Among the topics to be examined are Native American, Puritan, Protestant, Catholic, Jewish, and African-American traditions, as well as the new or alternative religions that have developed in America. (Cr. 3)
341. Judaism. An introductory survey of post-biblical Judaism. Rabbinic texts and the emergence of rabbinic Judaism, Jewish holidays and practices, contemporary Judaism. The religious aspects of the question of Israel. (Cr. 3)

353. African Traditional Religion. A study of present-day, sub-Saharan African traditional religious beliefs, ceremonies, and practices, and their relation to other religious traditions. (Cr. 3)

354. Buddhism: Its Development and Interpretation. A study of the principles of Buddhist thought together with a reading of various Theravada and Mahayana texts. The course will address problems of philosophical interpretation, historical development and cultural transformation. (Cr. 3)

355. Islam. An introductory survey of the origins and religious teachings of Islam with special attention to the Islamic views of providence, revelation, worship, and moral obedience. Community, social justice, and revolutionary thought in the contemporary Islamic world will also be discussed. (Cr. 3)

357. Religions of China and the Far East. A survey of the religious traditions of the cultures of the Far East. Examines Confucianism, Taoism, and Far Eastern forms of Buddhism as well as the cultural background, beliefs, practices, art, and literature of these religions. (Cr. 3)

358. Religions of India. A survey of the religions that began in India: Hinduism, Jainism, and Buddhism. Traces the historical development of these religions from the time of the Vedas to Mahatma Gandhi. The survey will focus on the religious beliefs, practices, and literature of these groups. (Cr. 3)

359. Afro-Caribbean Religions. Explores the emergence of Afro-Caribbean religions such as Vodun, Candomble, Macumba, and Santeria from the intersection of West African and Catholic cosmologies. A critical assessment of the cosmologies, rituals, and theologies of these Afro-Caribbean religions, as well as their implications for enhancing the academic study of religion, form the focus of the course. (Cr. 3)

361. Yoga: Philosophy, Praxis and Art. A cross-cultural and interdisciplinary introduction to the nature of yoga—its philosophical underpinnings, its iconographical representations and its practices. Materials will be drawn from Hinduism, the Buddhism of Tibet and Japan, and Carmelite Christianity. In addition, contemporary neuropsychological approaches will be explored. The course will be enhanced by field trips that explore the art and practices of these areas.

Elective Group B: Religion and Contemporary Thought

400. Special Topics. An intensive study of a particular aspect of religion and contemporary thought in the area of religion and other disciplines (e.g., the arts, natural or social sciences) or from within the field of religious ethics (e.g., a special topic in bioethics, religious biography). The subject will vary from semester to semester.

Religion and Other Disciplines

403. Ethics in the Workplace. An investigation of the ethical challenges, from the personal to the global, that arise in the context of the workplace. Texts will feature case studies and analysis of issues ranging from honesty and fidelity to consumption patterns, organizational structure, and corporate ethos. Students will be introduced to theories in both philosophical and theological ethics that will provide critical tools to help determine a coherent and defensible ethic for their working lives.

417. Religious Faith and the Arts. An exploration of the ways in which religious faith is expressed through the arts, including the visual, performing, and plastic arts. Much of the course will take place off-campus in the theaters, museums, concert halls, and churches of New York City. (Cr. 3)

425. Psychology and Religion. An examination of ways in which psychology has both broadened and challenged the understanding of religion; study of such topics as self, psyche, symbolism, psychotherapy, and spiritual methods. (Cr. 3)
442. Islam and Politics. An investigation into the relationship between religious and political thought of the peoples of Islam. Selected Quranic texts and Hadiths will be studied for their political content. The history of political Islam and the contemporary Islamic scene throughout the world will be featured elements of the course. (Cr. 3)

460. Comparative Religions. This course will examine contemporary issues arising within religious studies that allow us to compare religions. Material will be drawn from both Western and Asian religious traditions; topics will focus on such issues as God, mysticism, evil, creation and/or salvation. (Cr. 3)

463. Religion and Science. A study of their historical and contemporary relations. Comparison of methods and the religious implications of cosmology, quantum theory, evolutionary biology, and the neurosciences. Contemporary issues such as Islamic science, environmentalism, and genetics. (Cr. 3)

404. Religion and Social Justice. The role of religion in the economic, political, and cultural life of the underclass in New York as interpreted through biblical insight and Roman Catholic social teaching. Site visits to such places as homeless shelters, social action groups, Wall Street, inner-city churches, the United Nations. (Cr. 3)

405. Urban America: Crisis and Opportunity. An interdisciplinary service learning course. Sociological, political science, economic analysis of urban poverty, combined with reflections on Catholic social teaching, provide the framework for student-volunteer work at various Bronx-based community organizations. (Cr. 3)

410. Death as a Fact of Life. An examination of the religious, legal, medical, and psychological questions concerning death. Reflections on the moral aspects of such issues as care of the dying and bereaved, cessation of treatment, euthanasia, suicide. The hope for life after death. (Cr. 3)

411. Women in Western Religion. An exploration of the field of women's studies in religion as it intersects with new understandings of God, text, and tradition emerging within Judaism, Christianity, and Islam. The course will look at the roles of women within these three traditions and consider the question of how people bring about religious change. (Cr. 3)

414. Christian Worship. An overview of Christian Initiation, Reconciliation, and Eucharist from an ecumenical viewpoint that takes into account the problems they pose, the theology they imply, and the new directions they indicate. (Cr. 3)

416. Saints: Yesterday and Today. The course examines the function of holy men and women within their religious traditions and more especially their ethical perspectives on the contemporary world. Included will be a study of the cult of Saints, hagiography, and “Saints” of our own times. (Cr. 3)

430. Contemporary Moral Issues. A theological and ethical investigation of selected moral problems of our time such as truth in government, violence, economic injustice, and racism. Consideration of additional moral issues. (Cr. 3)

432. Contemporary Christian Ethics. New approaches to biblical and church authority in contemporary Christian Ethics. New options in systematic ethics: models, method, moral absolutes, and exceptions. Sin and conscience in contemporary ethical thought. The theoretical material will be illustrated by concrete reference to specific moral issues. (Cr. 3)

433. Religious Dimensions of Peace. A theological and ethical inquiry into the major Jewish and Christian responses to war: pacifism, just war, and crusade. Various religious anthropologies are considered as possible ethical bases for peace in today’s world. Contemporary relevance of Reinhold Niebuhr, Mohandas K. Gandhi, Martin Luther King, Jr., and Cesar Chavez. (Cr. 3)

434. Non-Violent Revolution. A study of the theory and practice of non-violence as found in select contemporary leaders: Mohandas K. Gandhi, Martin Luther King, Jr., Cesar Chavez,
Vinoba Bhave, Danilo Dolce, and Helder Camara. Examination of the theological and ethical foundations of non-violent revolution. (Cr. 3)

435. Christian Marriage. The concept and development of human love in the committed marital relationship are considered in the light of Christian theology, other religious traditions, and the social sciences. (Cr. 3)

436. Theologies of Liberation. An examination of the theologies of liberation in Africa, Asia, Latin America, and among Afro-Americans and women in the United States; dialogue among these groups; response of first-world theologians; relation between religion and politics; place of activism in the life of a religious person. (Cr. 3)

440. American Christian Social Ethics. A theological and historical analysis of the thought of Walter Rauschenbusch, John A. Ryan, Reinhold Niebuhr, Martin Luther King, Jr., and Paul Hanley Fursey. A study of their impact on American religious, political, and economic institutions. (Cr. 3)

441. Sexuality and the Sacred. Explores some ways in which different religious traditions have perceived the relationship between sexuality and religion. Examines the religious roots of our own cultural attitudes toward sexuality and sex roles and looks at some contemporary attempts to rethink the relationships between sexuality and spirituality, and between women and men. (Cr. 3)

450. God and Evil. Who is God? Why is there evil in the world? The course will explore these fundamental religious questions by examining the relationship between differing concepts of God and evil. Course material will include classical texts and contemporary Jewish, Christian, and Pagan writings. (Cr. 3)

470. Majors’ Seminar. This course is an intensive study of an author, period, problem, or concern in a given religious tradition, or the comparative study of some aspect of several traditions. Topics vary from semester to semester. This seminar is open to Religious Studies majors and minors as well as to other interested students. All students must obtain the Chair’s permission for admission to the course. (Cr. 3)

480. Religious Studies Tutorial. Individual study under the supervision of a member of the department with the permission of the Chair. Open only to juniors and seniors majoring in Religious Studies who meet the requirements set by the Chair. (Cr. 3)

481. Religious Studies Honors Thesis. The completion of the Honors Thesis begun the previous semester, under the supervision of a department member and with the approval of the chair.

SCIENCE (SCI)

Dr. Edward B. Brown, Dean of Science

Requirements for a Minor in Science: 15 credits in approved science courses. A minimum grade of C is required in all courses.

These courses are not open to majors in the sciences.

201. Introductory Astronomy. Fundamental properties of radiation. Astronomical measurements. The motions of the sun and the planets. Stellar evolution. Stellar clusters and galaxies. Two lectures and one two-hour lab per week. (Cr. 3)

202. Introductory Geology. The basic features of the earth’s crust; the internal and external processes affecting it; its historical evolution. Two lectures and one two-hour lab per week. (Cr. 3)

203. Topics in Science I. Topics chosen from chemistry and the allied physical sciences to illustrate the principles, history, and philosophy of science and its impact on everyday life. Topics include air and water environment, solid waste disposal, fossil fuels, synfuels, and nuclear energy. Two lectures and one two-hour lab per week. (Cr. 3)

204. Topics in Science II. Topics chosen from chemistry and the allied life sciences to illustrate the principles, history, and philosophy of science and its impact on everyday life. Topics include the genetic code, biotechnology, food production, food and health, and drugs. Two lectures and one two-hour lab per week. (Cr. 3)
205. Lasers, Light and Optical Devices. The basic principles of light and color. Simple optical systems; lenses, mirrors, prisms. Natural phenomena; human eye, rainbows, sunset and ocean colors. Cameras (traditional, digital), television (CRT, LCD, plasma), VCR’s, DVD’s. Two lectures and one two-hour laboratory per week. (Cr. 3)

221. Introductory Meteorology. The science and prediction of weather including the atmosphere, storms, greenhouse effect, heat, radiation, air pollution, climate and climate changes. Two lectures and one two-hour lab per week. (Cr. 3)

230. Great Ideas in Physics. A study of the development of scientific thought. The contributions of Aristotle, Copernicus, Newton, Joule, Thompson (Lord Kelvin), Einstein, Bohr, Heisenberg, Gell-Mann. Emphasis is put on those theories which changes the basic assumptions of science. Two lectures, one two-hour lab period per week. (Cr. 3)

231. Chemistry in the Modern World. A brief course in fundamental principles and applications of chemistry to the living world. Two lectures and one two-hour lab per week. (Cr. 3)

232. Biology in the Modern World. A basic study of the principles and applications of biology in contemporary life. Two lectures and one two-hour laboratory period. (Cr. 3)

240. Fundamentals of Science. Introduction to scientific fundamentals. Two lectures and one two-hour lab per week. Prerequisite: EDUC 205 (Cr. 3)

241. Fundamentals of Life Science. Introduction to life science fundamentals. Two lectures and one two-hour lab per week. Prerequisite: SCI 240 (Cr. 3)

242. Fundamentals of Physical Science. Introduction to physical science fundamentals. Two lectures and one two-hour lab per week. Prerequisite: SCI 240 (Cr. 3)

Education students who must meet the earth science requirement take Introductory Astronomy 201 and Introductory Geology 202.

SOCIOMETRY (SOC)

Sociology, the scientific study of human social behavior, examines the processes and patterns of social interaction; forms of social organization; and the influences of social groups, institutions, and social structure upon human behavior.

The goals of the department are to develop the sociological imagination, including a familiarity with sociological concepts, theories, research methods, and research findings; to foster knowledge of and respect for diverse social systems and cultures; to alert students to the needs of their community and society; and to promote a spirit of social service.

The Department prepares students for careers in social service, law, administration in government or business, social research and data analysis, criminal justice, urban planning, anthropology and related fields. Internships are available for students to explore career interests and apply knowledge in field experiences.

Requirements for Sociology Major. All majors must complete 30 credits, including a 12-credit Core. The Core consists of 304, Social Class and Inequality; 307, Survey Research; 324, Sociological Theories; and 416, Seminar in Sociology. The additional 18 credits shall be selected from among the other courses listed under Sociology. Students should take 304 during their sophomore year, 307 and 324 during their junior year and 416 during their senior year. The department recommends that students take MATH 211 or PSYC 205 (Statistics). A minimum grade of C is required for all courses in the major.

Sociology majors interested in the general field of sociology, graduate school, research, law, teaching, administration and human resource management, urban planning, civil service, business administration and related fields need not choose an area of concentration.
Concentrations:

Sociology majors interested in anthropology, criminal justice or social service may choose those as an area of concentration but only after consultation with a departmental advisor. Such students shall meet the course requirements described below.

Anthropology. Recommended for students interested in anthropology and related careers. SOC 202, Introduction to Cultural Anthropology and any four of the following courses are required for this concentration: 204, Introduction to Urban Anthropology; 302, Race and Ethnicity; 317, Anthropology of Drugs; 327, Power and Conflict; 328, Societies and Cultures of Latin America; 331, Anthropology of Work and Occupations; 335, Culture, Health, and Illness. Students are encouraged to take courses outside their area of concentration.

Criminal Justice. Recommended for students interested in police work, probation/parole work, law, or related criminal justice careers. SOC 309, Criminology is required. Students must take two technical Criminal Justice courses dealing with particular kinds of crimes and the structure and function of the Criminal Justice system (SOC 361, Criminal Justice Administration; 362, Organized Crime; 363, Prisons and Probation; 364, Criminal Law and Society; 365, Police and Society; 366, White Collar Crime; 369, Current Issues in Criminal Justice); and two courses dealing with the social context of criminality (SOC 301, Social Problems; 308, Juvenile Delinquency; 310, Sociology of Deviance). Students are encouraged to take courses outside their area of concentration.

Social Services. Recommended for students interested in social-service related careers. SOC 210, Introduction to Social Services; 312, Social Services Practice I, and any three of the following courses are required for this concentration: 302, Race and Ethnicity; 306, The Family; 308, Juvenile Delinquency; 310, Sociology of Deviance; 319, Social Work Practice II; 335, Culture, Health and Illness; 399, Gender Roles. The Department strongly recommends that two of the remaining three courses be SOC 319, Social Services Practice II, and an Internship. Students are encouraged to take courses outside their area of concentration.

Requirements for Sociology Minor. Fifteen credits chosen by the student after consultation with a departmental advisor. Students will be required to take (a) one course dealing with social differentiation: Social Class and Inequality, Race and Ethnicity, or Gender Roles; (b) one course emphasizing the application of sociological analysis to one or several institutions of society: Family, Deviance, or Social Problems. In addition, students take three more courses from the courses listed below. Minors may not take the Senior Seminar or internship. A minimum grade of C is required for all courses in the minor.

201. Introduction to Sociology. An introduction to the nature and scope of the science of sociology. Emphasis on societies, social structures and institutions, social groups, and on the various social processes associated with social organization, socialization, and social change. (Not open to students who have completed LLRN 122.) (Cr. 3)

202. Introduction to Cultural Anthropology. An introduction to the basic concepts, aims and methods of socio-cultural anthropology. A comparative examination of human culture, past and present. (Cr. 3)

204. Introduction to Urban Anthropology. An anthropological examination of various aspects of urban life from an evolutionary and cross-cultural perspective. Fieldwork experience in studying neighborhoods. (Cr. 3)

210. Introduction to Social Services. The foundation of social services as a professional choice, its historical and philosophical development, its social purpose, value assumptions, and theoretical base. A review of the current methodologies for social services practice. Case studies and analyses of programs, policies and issues. (Cr. 3)

301. Social Problems. A critical analysis of the causes and impact of social problems using the major theoretical approaches developed in sociology. Topics include population problems, the environment, corporate power, terrorism, etc. (Cr. 3)
302. Race and Ethnicity. Theories, concepts, and research findings from sociology and anthropology as they relate to dominant and minority relations in various countries. Sociological study of conflict, prejudice, and discrimination. (Cr. 3)

304. Social Class and Inequality. Analysis of the class structure of the United States. Economic and noneconomic characteristics of different classes. How class status affects one's life (physical and mental health, food and shelter, education, crime, and political power). The factors influencing what class one ends up in adulthood. The impact of welfare reform. Variations in class inequality across societies and across different time periods in the U.S. Varying explanations of and solutions to class inequality. (Cr. 3)

305. Urban Sociology. New York City serves as a model for studying cities and urbanization. Central issues, such as growth and decline, gentrification, ethnic and racial change, neighborhoods, business, and cultural concentrations will be studied through field visits, readings, and reports. (Cr. 3)

306. The Family. The nature and structure of the family as a group and as a social institution. Cross-cultural, historical and contemporary variations in family structure and interaction. Patterns in mate selection, marriage, parenthood, divorce, and their correlation with such variables as income, ethnicity, religion and education. (Cr. 3)

307. Survey Research. The logic and skills of social scientific research. Research design, conceptualization and measurement, sampling, and data analysis. Student experience in data collection and analysis. (Cr. 3)

308. Juvenile Delinquency. Sociological perspectives on the nature, causes, and prevention of delinquency. (Cr. 3)

309. Criminology. A sociological examination of crime and theories of crime causation. Topics also include the extent of crime, types of crimes, indices of crime, and societal reactions to crime. (Cr. 3)

310. Sociology of Deviance. Study of stigmatized social behavior, including areas such as drug dependence, prostitution, swinging, homosexuality, and violence. Sociological theories to explain deviance are analyzed. (Cr. 3)

311. Individual in Society. The influence of social structure, social processes and social change on individual attitudes and behavior. Topics include socialization and the development of self, attitude organization and change, social influence processes and social power, group structure and processes, and the effects of variables such as ethnicity, class and religion on personality and behavior. (Cr. 3)

312. Social Services Practice I. This course introduces the student to basic social services methods. Concentration in this course will be working with individuals and families. Students will learn about the helping process, starting with the initial phases, assessment, and termination. (Cr. 3)

315-316. Special Topics in Sociology. New course offerings in any area of sociology. Topics will be listed in the pre-registration booklets. Course outlines will be posted in the sociology department before the pre-registration periods. (Cr. 3, 3)

317. Anthropology of Drugs. An exploration of the use of drugs cross-culturally, focusing on their political, economic, and cultural ramifications. Study of alcohol, marijuana, and coca. Qualitative and quantitative data will be used in the course. (Cr. 3)

319. Social Services Practice II. Students will explore the theories used in Social Services practice. Issues such as helping people in crisis will also be discussed. The focus will be on generalist practice, and the different roles and methods social services workers use in working with groups and communities. (Cr. 3)

324. Sociological Theories. A survey of sociological theories of the 19th and 20th centuries, e.g., symbolic interactionism, functionalism, conflict theory, exchange theory, ethnomethodology. Special emphasis is given to the contributions of major sociologists: Comte, Durkheim, Mead, Marx, Weber, Parsons, Goffman, Garfinkel, et al. (Cr. 3)
327. Power and Conflict. Analysis of the nature of power as experienced and expressed in different social, historical, and cultural contexts. Different theories of the distribution and exploitation of political, economic, and social power in local, regional, national, and global contexts. Different mechanisms used by dominant groups to subjugate others. The social organization, tactics, goals, and impact of grassroots movements by exploited peoples, e.g. women, minorities, immigrants, laborers. Varying proposals to identify and respond to the many social guises of hegemony. (Cr. 3)

328. Societies and Cultures of Latin America. A study of the native and contemporary cultures of Latin American societies from an anthropological perspective. Analysis of the processes of socio-cultural change and the external forces affecting Latin American cultures. (Cr. 3)

331. Anthropology of Work and Occupations. The study of the structure and operation of bureaucracies (such as corporations, hospitals, labor unions, government bureaus, and the military) and the organization of work and occupations in human societies. Topics include structural determinants of behavior in organizations, job satisfaction studies, effects of work on families and effects of social, economic, and political factors on work, occupations, and complex organizations. (Cr. 3)

335. Culture, Health, and Illness. Application of anthropological and sociological methods and theory in the comparative analysis of illness, medical practices, and health systems. (Cr. 3)

338. Schools and Society. Examination of how schools in U.S. and abroad are organized and operate, why there are class, race, and sex differences in how much education people get, why better educated people get the best jobs, and what must be done to reform our schools. (Cr. 3)

345. New York City Ethnic Communities. New York City will serve as a model for studying ethnic communities. Central sociological themes, such as population, ethnic transition, assimilation, community structure, etc., will be studied through field visits, readings, and reports. (Cr. 3)

361. Criminal Justice Administration. An analysis of the various agencies in the administration of justice, the nature of law enforcement, the prisons, court system and rehabilitation agencies. (Cr. 3)

362. Organized Crime. Analysis of the origin, organization, control, and consequences of organized crime in the United States. Emphasis on conflicting theories and current research. (Cr. 3)

363. Prisons and Probation. The correctional system in relation to punishment, treatment, and reclamation of offenders. Types of correctional institutions; parole and probation. Theories and methods of corrections emphasized. (Cr. 3)

364. Criminal Law and Society. An exploration of the development of legal systems in different societies. Criminal law in the United States will be discussed within the context of social and political influences on its making, administration and enforcement. An underlying question to be examined: “Is law an effective form of social control?” (Cr. 3)

365. Police and Society. A socio-historical and comparative analysis of the structure, functions and organization of contemporary police departments. This course will address investigative and specialized operations in policing; police discretion and decision making; police culture and personality; police misconduct, and minorities and women in law enforcement. (Cr. 3)

366. White Collar Crime. Street crimes command the attention of politicians and the mass media. But white collar crimes cost our society far more in lives hurt and lost, and property damaged. These white collar crimes take such diverse forms as professional misconduct, deliberate industrial pollution, and governmental repression of political opponents. The course examines the content, causes, and means of controlling these various white collar crimes. (Cr. 3)
369. Current Issues in Criminal Justice. Current and controversial issues in criminal justice will be explored and analyzed in this course. The topics will be debated in a classroom setting which will combine traditional lectures with student presentations and full class discussions. (Cr. 3)

375. Internship Program. Students work in agencies related to their prospective careers (e.g. legal services, urban planning, polling bureaus, corrections, probation offices, counseling centers, social services agencies, etc.). Students should obtain the permission of their advisor before registering for an internship and will register through the Career Services and Cooperative Education Office. Six credits of internship are permitted; three credits will count for sociology major credit (Co-op 403) and other three for elective credit (Co-op 402). (Cr. 3)

380. Sport and American Society. An interdisciplinary course on the history of American sport from the colonial era to the present. Special emphasis will be given to the economic, sociological, political, and psychological aspects of twentieth century American sport. (Cr. 3)

399. Gender Roles. The impact of political, economic, and social forces on the development and definition of sex roles. Analysis of contemporary roles of men and women and their consequences within societies. Consideration of historical and cross-cultural variations. (Cr. 3)

416. Senior Seminar. An application of sociological theory and research to the topic of the seminar. Prerequisites: SOC 304, 307 and 324. (Cr. 3)

460. Independent Study. A course of study designed for students with particular research interests not covered in the department’s curriculum. Topics and methods of research are carefully worked out by the student in consultation with the supervising professor. This course is ordinarily open only to those students who have completed SOC 307 and have a minimum GPA of 3.0. Before registration, topics must be approved by the supervising professor and the department chair. (Cr. 3)

465. Research in Sociology or Anthropology. Participation in current research projects in the department. Permission of Chair and supervising professor required before registration. Prerequisite: SOC 307. (Cr. 3)

SPANISH
See page 283.

URBAN AFFAIRS (URBN)
The Urban Affairs Program introduces the student to the process of urbanization by analyzing the history, ecology and structure of cities, even as it explores their social, economic, cultural, political and public policy environments. Contemporary urban problems such as inadequate housing, education, health care, crime and the criminal justice system are addressed, as are challenges like ethnic, racial, class and religious diversity. Also discussed are patterns of suburbanization, as well as planning for the future of cities.

Requirements for Major in Urban Affairs:
A major in Urban Affairs can be pursued only in conjunction with a specialization in one of the traditional academic disciplines. A total of 30 credits or ten courses are required, including one course dealing primarily with urban subject matter in at least three of the following departments: Economics, Government, History, Psychology, or Sociology. All majors are required to take the introductory course in Urban Affairs, GOVT 222 Power in the City before taking the required Research Seminar. Additional requirements include a Research Seminar and a supervised field experience in a New York City government or social service agency, or elected official's office which may be satisfied by COOP 402, COOP 403 or URBN 405 Urban America, Crisis and Opportunity.

No more than four courses in any academic discipline can be counted towards the major in Urban Affairs. A minimum grade of C is required to fulfill the requirements for the major.
Requirements for Minor in Urban Affairs:
The minor in Urban Affairs is available to students in all schools of the College. Fifteen credits or five courses are required, including the introductory course in Urban Affairs GOVT 222 Power in the City, and a Research Seminar, normally URBN 401 or URBN 405. No more than two courses from any one discipline can be counted towards the minor.

CIVL 304. Environmental Engineering Principles. Problems of pollution control, population forecasting, air and water quality requirements, solid waste management, principles of stream pollution. Principles of processes for treatment of water and wastewater. Environmental quality management with emphasis on water pollution control. Three lectures. Prerequisite: CHEM 101. (Cr. 3)

ECON 332. Environmental Economics. An analysis of the relationship between social behavior, environmental degradation, economic principles and public policy. Topics include pollution, extinction, sustainability, population growth, global warming, acid deposition, hazardous waste, poverty, and health. This course also considers the viability and success of public policies designed to alleviate the environmental problems. Prerequisites: ECON 201, 202. (Cr. 3)

ECON 333. Public Finance. A study of why a government role in the economy is needed and how it ought to be financed. It considers the nature of different types of government programs involving expenditures and the types of taxes used to raise revenues. It is concerned with the impact of government on the efficiency and equity of market outcomes. Fall 2002, Fall 2003. Prerequisites: ECON 201, 202. (Cr. 3)

ECON 405. Labor Economics. A study of the labor market, employment and wage determination; theories that explain wage differentials and unemployment; and alternative policies that can reduce labor market problems. Prerequisites: ECON 201, 202, 227 or with permission of instructor. (Cr. 3)

ENGL 285. Literary New York. A study of selected literary works in which New York City figures prominently as a subject, a metaphor, or a muse. (Cr. 3)

ART 360. New York City Architecture, Urbanism & Design. From the Federal-era house to the modern skyscraper, New York's architectural heritage is compelling. This course is an introduction to the philosophy and the socio-economic/political forces that have shaped our city. Using the city as our classroom, you will physically experience architecture and our urban environment—look, touch, discuss, question. Classes will take place on site, at various Manhattan locations. (Cr. 3)

ART 404. The New York Skyscraper. An introduction to the art of building, concentrating on the skyscraper in New York City, and dealing only with such earlier work as relates to its background and development. Attention is given to planning, style, and engineering. Course will feature lectures, tours, and visits to studios. (Cr. 3)

ART 435. Current Trends. A course to introduce the student to the current New York Art Scene. There will be visits to galleries, studios, museums and performance places. (Cr. 3)

GOVT 212. Wall Street. The interactions among the world's investors, investment institutions, and various self-regulatory bodies involved in the capital markets will be explored. Stocks, bonds, mutual funds, hedge funds, derivatives, and many other investment instruments as well as psychological mindsets directing the markets will be investigated. The instructional part of the course will be relieved by field trips for practical, on-the-scene insights into Wall Street operations, employment possibilities, and the stock market's role in everyone's life. (Cr. 3)
GOVT 222. Power in the City. Significant buildings and public works are used as historical case studies of personal, interest group, economic or political power in the development of the city. Students must be prepared to walk about five miles over several hours, rain or shine. (Cr. 3)

GOVT 223. Environmental Politics. Analysis of US and global environmental politics and major issues involved in ecological sustainability and development, including resource management, pollution control and climate change. (Cr. 3)

GOVT 315. State and Local Government in the United States of America. The history and development of federalism in the United States political system, with emphasis on contemporary state and local political institutions and public policy issues. Governmental structures and processes are considered in relation to policy outcomes. (Cr. 3)

GOVT 321. Urban Government and Politics. Examination of government and politics in major United States cities and suburbs. Impact of urban political, economic and social elites, labor, ethnic and racial groups, state and federal governments on urban politics and public policy. Analysis of selected metropolitan problems. (Cr. 3)

GOVT 322. Public Administration. The role of bureaucracy in carrying out public policy. The examination of administrative processes with special emphasis on administrative behavior and decision-making. (Cr. 3)

GOVT 420. Seminar: Conflict Resolution. Analysis of sources of conflict and study of methods of conflict management and resolution at interpersonal, neighborhood, national, and international levels. (Cr. 3)

GOVT 426. Seminar: The Politics of Race, Ethnicity and Class in the United States. Analysis of the “ignoble paradoxes” of American freedom and democracy that are embodied in Indian genocide, African enslavement, social annihilation, white supremacist ideologies and racism. A study of leaders and mass movements that pushed United States’ society and its political institutions in the direction of greater racial, ethnic, and class equality and justice. (Cr. 3)

HIST 387. New York City and the American Urban Experience. The colonial and Revolutionary city, urban imperialism, the city in the American mind, immigration, social mobility, the rise of the ghetto, the impact of the New Deal, suburbanization, the modern metropolis, recent trends. (Cr. 3)

MGMT 430. Business, Government, and Society. Examines interactions between business, government and society in a changing global economy. Analyzes the role of government as an arbiter between business practices and society’s expectations and values. From the perspective of the firm, addresses corporate responsiveness to public concerns, business ethics and public issues management. Considers government regulation of product safety and quality; environmental protection and resource conservation; workforce diversity; workplace health and safety; and international trade and competitiveness. Prerequisite: Business Seniors only. (Cr. 3)

PSYC 251. The Psychology of Delinquent and Criminal Behavior. A survey of psychosocial causes of criminal behavior. Topics include: the antisocial personality, drug abuse, neuropsychological components of criminality, and the critical evaluation of detection methods. (Cr. 3)

PSYC 321. Social Psychology. A study of the processes by which the behaviors, thoughts, and feelings of the individual are influenced by his/her social environment. Topics include: social perception and attribution, attitude development and change; interpersonal attraction and interpersonal relations such as friendship. (Cr. 3)

RELS 417. Religious Faith and the Arts. An exploration of the ways in which religious faith is expressed through the arts, including the visual, performing and plastic arts. Much of the course will take place off-campus in the theaters, museums, concert halls and churches of New York City. (Cr. 3)

SOC 204. Introduction to Urban Anthropology. An anthropological examination of various aspects of urban life from an evolutionary and cross-cultural perspective. Fieldwork experience in studying neighborhoods. (Cr. 3)
SOC 301. Social Problems. A critical analysis of the causes and impact of social problems using the major theoretical approaches developed in sociology. Topics include poverty, the environment, corporate power, war, et al. (Cr. 3)

SOC 302. Race and Ethnicity. Theories, concepts, and research findings from sociology and anthropology as they relate to dominant and minority relations in various countries. Sociological study of conflict, prejudice, and discrimination. (Cr. 3)

SOC 304. Social Class and Inequality. Analysis of the class structure of the United States. Economic and noneconomic characteristics of different classes. How class status affects one's life (physical and mental health, food and shelter, education, crime, and political power). The factors influencing what class one ends up in adulthood. The impact of welfare reform. Variations in class inequality across societies and across different time periods in the U.S. Varying explanations of and solutions to class inequality. (Cr. 3)

SOC 305. Urban Sociology. New York City serves as a model for studying cities and urbanization. Central issues, such as growth and decline, gentrification, ethnic and racial change, neighborhoods, business, and cultural concentrations will be studied through field visits, readings, and reports. (Cr. 3)

SOC 308. Juvenile Delinquency. Sociological perspectives on the nature, causes, and prevention of delinquency. (Cr. 3)

SOC 309. Criminology. A sociological examination of crime and theories of crime causation. Topics also include: the extent of crime, types of crimes, indices of crime, and societal reactions to crime. (Cr. 3)

SOC 310. Sociology of Deviance. Study of stigmatized social behavior, including areas such as drug dependence, prostitution, swinging, homosexuality, and violence. Sociological theories to explain deviance are analyzed. (Cr. 3)

SOC 327. Power and Conflict. Analysis of the nature of power as experienced and expressed in different social, historical, and cultural contexts. Different theories of the distribution and exploitation of political, economic, and social power in local, regional, national, and global contexts. Different mechanisms used by dominant groups to subjugate others. The social organization, tactics, goals, and impact of grassroots movements by exploited peoples, e.g. women, minorities, immigrants, laborers. Varying proposals to identify and respond to the many social guises of hegemony. (Cr. 3)

SOC 338. Schools and Society. Examination of how schools in U.S. and abroad are organized and operate, why there are class, race, and sex differences in how much education people get, why better educated people get the best jobs, and what must be done to reform our schools. (Cr. 3)

SOC 345. New York City Ethnic Communities. New York City will serve as a model for studying ethnic communities. Central sociological themes, such as population, ethnic transition, assimilation, community structure, etc., will be studied through field visits, readings, and reports.

SOC 361. Criminal Justice Administration. An analysis of the various agencies in the administration of justice, the nature of law enforcement, the prisons, court system and rehabilitation agencies. (Cr. 3)

SOC 362. Organized Crime. Analysis of the origin, organization, control, and consequences of organized crime in the United States. Emphasis on conflicting theories and current research. (Cr. 3)

SOC 363. Prisons and Probation. The correctional system in relation to punishment, treatment, and reclamation of offenders. Types of correctional institutions; parole and probation. Theories and methods of corrections emphasized. (Cr. 3)
SOC 364. Criminal Law and Society. An exploration of the development of legal systems in different societies. Criminal law in the United States will be discussed within the context of social and political influences on its making, administration and enforcement. An underlying question to be examined: “Is law an effective form of social control?” (Cr. 3)

SOC 365. Police and Society. A socio-historical and comparative analysis of the structure, functions and organization of contemporary police departments. This course will address the patrol, investigative and specialized operations in policing; police discretion and decision making; police culture and personality; police misconduct and current issues. (Cr. 3)

SOC 366. White Collar Crime. Street crimes command the attention of politicians and the mass media. But white collar crimes cost our society far more in lives hurt and lost, and property damaged. These white collar crimes take such diverse forms as professional misconduct, deliberate industrial pollution, and governmental repression of political opponents. The course examines the content, causes, and means of controlling these various white collar crimes. (Cr. 3)

URBN 301. Special Topics in Urban Affairs. Course descriptions will be announced when courses are offered.

URBN 303. Urban Planning. Introduction to the principles and techniques of urban planning. Practical application of knowledge from many disciplines in forming physical design for urban spaces. Consideration of demographic, political, economic, and legal factors in the planning process. (Cr. 3)

URBN 401. Seminars in Urban Affairs. Environmental Politics and Public Policy; Conflict Resolution; Women in Politics and The Politics of Race, Ethnicity and Class in the U.S.A. Interdisciplinary consideration of selected modern urban problems. (Cr. 3)

URBN 402. Independent Study in Urban Affairs. Supervised reading and/or research designed to allow majors to pursue areas of special interest. Topic and outline of plans must be approved by director of program and supervising professor. (Cr. 3)

URBN 405. Urban Affairs Seminar: Urban America, Crisis and Opportunity. An interdisciplinary course. Sociological, political, psychological and economic analysis of urban poverty combined with reflections on social justice in religious traditions. Provide the framework for student-volunteer work experience at the Highbridge Community Life Center in the Bronx. (Cr. 3)

CO-OP 402, 403. Internship. Main emphasis on practical experience to help in career planning. Students work in agencies related to their prospective careers (e.g., legal services, urban planning, corrections, parole, counseling). Eight hours per week; a log, attendance at periodic general meetings, and individual conferences with the instructor are required. To register for this course see chair and register through the Cooperative Education Program. (Cr. 3)
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B.A. New York University; M.D., SUNY Downstate Medical School. (2007–)

MICHAEL SHAPIRO
Adjunct Assistant Professor of English
B.S., New York University; M.A., Ph.D., State University of New York, Stony Brook. (2001–)

ZACHARY SNIDER
Adjunct Instructor of English
B.A., Pace University; M.A., Long Island University; PhD, London Metropolitan University. (2007–)

GOLDA SOLOMAN
Adjunct Associate Professor in Communication
B.A., M.A., Brooklyn College. (1996–)

CHONG-HWAN SON
Adjunct Assistant Professor of Economics and Finance
B.S., Kwan Doing University (Korea); M.A., M.B.A., Fairleigh Dickinson University; Ph.D., City University of New York. (2007–)

LEONARD STABILE
Adjunct Instructor in Radiological and Health Professions
B.A., State University of New York at Buffalo; B.S., Manhattan College. (2003–)

WILLIAM C. STAIB
Adjunct Associate Professor of Computer Information Systems and Radiological and Health Professions
B.S., New York University; M.B.A., Iona College. (1994–)

HARRY STEIN
Adjunct Assistant Professor of History
B.A., M.Ed., University of Pittsburgh; Ph.D., City University of New York. (2003–)

HOLLY A. STOVALL
Adjunct Instructor of Spanish
B.A., Western Illinois University; M.A., City University of New York. (2002–)

MICHAEL SUTERA
Adjunct Instructor of Management
B.A., Montclair University; M.A., M.B.A., Fordham University. (2005–)

JACQUELINE THOMAS
Adjunct Instructor of Education
B.A., Hunter College; M.S., Lehman College; P.D., College of New Rochelle. (2006–)

LISA D. TOSCANO
Adjunct Assistant Professor in Biology & Physical Education
B.S., Manhattan College; M.S., Queens College. (1987–)

WILLIAM T. VERICKER
Adjunct Assistant Professor of English
M.S., Iona College; M.A., Ph.D., Columbia University. (2000–)

ARIE VILNER
Adjunct Assistant Professor of Economics and Finance
B.S., Ph.D., New York University. (2008–)

JAMES G. WHELAN
Adjunct Assistant Professor of Management
B.S., M.B.A., Manhattan College; M.A., New York University. (1997–)

ALTON WOODMAN
Adjunct Instructor of Education
B.S., State University of New York, New Paltz; M.S., Lehman College. (2004–)

Faculty Emeriti

CARL W. ALBERNI
Associate Professor Emeritus of Accounting
B.B.A., Loyola University, Los Angeles; M.B.A., University of California at Los Angeles, Ph.D., University of Missouri; C.P.A., California; C.M.A., Institute of Management Accounting. (1984–1995)

JOHN J. ANSBRO
Professor Emeritus of Philosophy
B.A., St. Joseph’s Seminary; M.A., Ph.D., Fordham University. (1959–1996)
VINCENT W. ANTONETTI
Professor Emeritus of Mechanical Engineering
B.M.E., The City College of New York; M.S.M.E., Columbia University; Ph.D., University of Waterloo; Professional Engineer, New York State. (1987-1996)

VICTOR G. BADDING
Professor Emeritus of Chemistry
B.S., Canisius College; Ph.D., University of Notre Dame. (1965-2001)

RAYMOND C. BARILE
Professor Emeritus of Chemistry
B.S., Manhattan College; M.S., Ph.D., Fordham University. (1961-2002)

BR. WILLIAM BATT, F.S.C.
Professor Emeritus of Computer Information Systems
B.A., M.S., The Catholic University of America; M.A., Manhattan College; M.B.A., Iona College; Ph.D., Georgetown University. (1959-1996)

ROBERT E. BERLIN
Associate Professor Emeritus of Mechanical Engineering
B.S. (M.E.), The City College of New York; M.S., Rensselaer Polytechnic Institute; M.S., New York University; D.P.H., Columbia University; Professional Engineer, New York State. (1982-1996)

BR. AUSTIN BERNABEI, F.S.C.
Associate Professor Emeritus of Physics
B.C.E., Manhattan College; M.S., The Catholic University of America; M.Nuc.E., Ph.D., New York University. (1956-1992)

BR. GEORGE R. BERRIAN, F.S.C.
Associate Professor Emeritus of Education
B.A., M.A., Manhattan College; Ed.D., Teachers College, Columbia University. (1972-1990)

REV. REYNOLD BORZAGA
Associate Professor Emeritus of Religious Studies

BR. FRANCIS R. BOWERS, F.S.C.
Associate Professor Emeritus of English

BR. CONRAD T. BURRIS, F.S.C.
Professor Emeritus of Chemical Engineering
B.S., M.S., University of Alberta; Ph.D., The Catholic University of America. (1955-1994)

JOSEPH M. BUSCHI
Assistant Professor Emeritus of Physics

SR. FRANCES MARIE CARDILLO, O.S.F.
Associate Professor Emeritus of Biology
B.S., M.A., College of St. Rose; Ph.D., St. Bonaventure University. (1976-1994)

JOHN CAREY
Assistant Professor Emeritus of Physical Education

RICHARD V. CONTE
Associate Professor Emeritus of Mechanical Engineering
B.E. (M.E.), Manhattan College; M.S. (M.E.), Ph.D., University of Arizona; Professional Engineer, New York State. (1972-1996)

ALFRED P. DILASCIA
Professor Emeritus of Philosophy
B.A., Queens College; M.A., Ph.D., Fordham University. (1949-1995)

JUDITH F. EVANS
Associate Professor Emeritus of Education

JACK FAMULARO
Associate Professor Emeritus of Chemical Engineering

JOHN P. FANDEL, JR.
Professor Emeritus of English and World Literature

BR. KENNETH FITZGERALD, F.S.C.
Associate Professor Emeritus of Mathematics and Computer Science
BR. J. ANTHONY FLYNN, F.S.C.
Professor Emeritus of Computer Information Systems
B.A., M.A., Manhattan College; Ph.D., University of Notre Dame. (1978-1997)

ESTELLE L. FRYBURG
Associate Professor Emeritus of Education
B.S. in Ed., M.S. in Ed., The City College of New York; Ph.D., New York University. (1972-1995)

SUSHILA J. GIDWANI
Associate Professor Emeritus of Economics and Finance
B.S., Bombay University; M.B.A., Ph.D., University of Minnesota. (1965-1994)

THOMAS E. GILBART
Associate Professor Emeritus of Psychology

BR. KEVIN HARGADON, F.S.C.
Associate Professor Emeritus of Psychology

BR. A. PETER HENDERSON, F.S.C.
Professor Emeritus of Physics
B.S., The Catholic University of America; M.S., New York University; Ph.D., University of Maryland. (1967-1997)

HELEN C. HOLLEIN
Professor Emeritus in Chemical Engineering
B.S., (Ch.E.), University of South Carolina; M.S., D.Eng.Sc., New Jersey Institute of Technology; Professional Engineer, New Jersey. (1982-2000)

MANSOUR JAVID
Professor Emeritus of Electrical Engineering
B.Sc., Birmingham University, England; M.E., Ph.D., McGill University. (1981-1990)

JOHN S. JERIS
Professor Emeritus of Environmental Engineering
B.S., M.S., Sc.D., Massachusetts Institute of Technology; Professional Engineer, New York State, District of Columbia, and New Jersey. (1962-1995)

JOHN W. KEBER
Associate Professor Emeritus of Religious Studies

WILLIAM P. KENNEY
Assistant Professor Emeritus of English

ROBERT K. KRAMER
Professor Emeritus of German
A.B., St. Peter's College; A.M., St. Louis University. (1961-2001)

KENNETH B. LAWRENCE
Professor Emeritus of Mechanical Engineering
B.S.M.E., M.S.M.E., Pennsylvania State University; Professional Engineer, New Jersey. (1963-1985)

EMILE LETENDRE
Associate Professor Emeritus of Management
B.A., Providence College; M.A., Boston College; Ph.D., New York University. (1968-2000)

B. JAMES LEY
Professor Emeritus of Electrical Engineering

FRANCIS J. LODATO
Professor Emeritus of Education
B.A., St. John's College; M.A., Fordham University; M.S. Ed., Ph.D., St. John's University. (1965-1990)

ROSITA L. MARCELLO
Assistant Professor Emeritus of Spanish

GEORGE L. MCGEARY
Associate Professor Emeritus of Fine Arts

THOMAS MCGOWAN
Professor Emeritus of Religious Studies
B.A., The Catholic University of America; M.A., Manhattan College; Ph.D., University of Toronto. (1965-1996)
G. MICHAEL MESTICE  
Professor Emeritus of Accounting  
B.B.A., Manhattan College; J.D., New York University; C.P.A., New York State. (1945-1987)

BR. LEO P. MICHIELS, F.S.C.  
Associate Professor Emeritus of Chemistry  
A.B., M.A., Manhattan College; M.S., Ph.D., University of Detroit. (1974-1997)

JOHN A. MIELE  
Associate Professor Emeritus of Psychology  
B.S., Long Island University; M.A., Ph.D., New York University. (1967-1993)

HERBERT K. MILLER  
Professor Emeritus of Chemistry  
B.S., The City College; M.S., University of Illinois; Ph.D., Columbia University. (1963-1991)

LEONORA MIRONE  
Professor Emeritus of Chemistry  
B.A., College of New Rochelle; M.S., Ph.D., Fordham University. (1957-1978)

JOHN H. MORAN  
Associate Professor Emeritus of Philosophy  
B.S., University of Scranton; M.A., Ph.D., Fordham University. (1962-1995)

ALBERT J. MORTOLA  
Associate Professor Emeritus of Mathematics  

JAMES A. MUELLER  
Professor Emeritus of Environmental Engineering  
B.C.E., M.E., Manhattan College; Ph.D., University of Wisconsin; Professional Engineer, New York State. (1969-2001)

JOHN A. MUELLER  
Professor Emeritus of Civil Engineering  
B.C.E., Manhattan College; M.S. (Civil), Ph.D., Lehigh University; Professional Engineer, New York State. (1967-1974; 1977-1996)

BR. JOHN A. MULLER, F.S.C.  
Associate Professor Emeritus of Government  

BR. A. JOSEPH MURPHY, F.S.C.  
Associate Professor Emeritus of French  
B.A., The Catholic University of America; M.A., Manhattan College; Ph.D., Fordham University. (1967-1987)

JOHN D. NAGLE  
Associate Professor Emeritus of English  
A.B., Manhattan College; M.A., Ph.D., Fordham University. (1958-1994)

BR. MALCOM T. O’SULLIVAN, F.S.C.  
Professor Emeritus of Management  

LYDIA PANARO  
Assistant Professor Emeritus of English  

MAUNG HLA PE  
Associate Professor Emeritus of Physics  
B.Sc., Rangoon University; M.S., Polytechnic Institute of Brooklyn; M. Nuc. Eng., New York University; M.S.E.E., Ph.D., Lehigh University. (1961-1991)

WILLIAM F. REILLY, JR.  
Associate Professor Emeritus of Philosophy  
B.A., Manhattan College; M.A., Ph.D., Fordham University. (1950-1995)

GUILLERMO P. ROMAGOSA  
Assistant Professor Emeritus of Religious Studies  
J.P.L., University of Havana; M.A., University of Notre Dame; Ed.D., Columbia University. (1964-1995)

JOHN BARRY RYAN  
Professor Emeritus of Religious Studies  
B.A., The Catholic University of America; M.A., Manhattan College; S.T.L. University of Strasbourg; M.A. in Liturgy, Ph.D., Institut Catholique de Paris. (1972-2006)

BR. LUKE SALM, F.S.C.  
Professor Emeritus of Religious Studies  
FREDERICK M. SCHWEITZER
Professor Emeritus of History
B.A., Lehigh University; A.M., Ph.D., Columbia University. (1960-1999)

ROBERT J. SPINNA
Associate Professor Emeritus of Civil Engineering
B.S.C.E., Villanova University; M.S.C.E., Columbia University; Professional Engineer, New Jersey and New York State. (1954-1995)

HENRY J. STALZER, JR.
Associate Professor Emeritus of Electrical Engineering
B.S.E.E., Cooper Union; M.S.E.E., Ph.D., Polytechnic Institute of Brooklyn. (1978-1996)

WOLODYMYR STOJKO
Professor Emeritus of History

EMILY MUNG-CHIO CHAO SUN
Professor Emeritus of Economics and Finance
B.S., National Chiao-Tung University, China; M.A., Ph.D., University of Michigan. (1964-1993)

ROBERT V. THOMANN
Professor Emeritus of Environmental Engineering
B.C.E., Manhattan College; M.C.E., Ph.D., New York University. (1966-1996)

LUKE V. TITONE
Professor Emeritus of Physics

GARY VENA
Professor Emeritus of English

ANTHONY E. VENTRIGLIA
Associate Professor Emeritus of Mathematics and Computer Science
A.B., Columbia University; M.S., Brown University. (1947-1992)

EMIL E. VON KOEHLER
Associate Librarian Emeritus
Baccalaureate, Lutheran Gymnasium, Budapest; M.S., University of Technology and Economics, Budapest; M.L.S., Columbia University. (1964-1987)

FREDERICK A. ZENZ
Professor Emeritus of Chemical Engineering
B.S., Queens College; M.Ch.E., New York University; Ph.D., Polytechnic Institute of Brooklyn; Professional Engineer, New York State. (1969-1987)

MELVIN ZIMET
Associate Professor Emeritus of Managerial Sciences

MANHATTAN COLLEGE
SENATE

Officers
Pamela Chasek, Speaker
Colette Geary, 1st Deputy Speaker
Ryan Scholl, 2nd Deputy Speaker,

Faculty (27)
Deborah Adams, Physical Education (09)
Michael Antolik, History/Government (09)
Nada Assaf-Anid, Chemical Engineering (08)
Thelma Baxter, Education (08)
Joan Cammarata, Modern Foreign Languages/Philosophy (10)
Pamela Chasek, AT LARGE (08)
Stephen Choi, Accounting/CIS (09)
Lance Evans, Biology (10)
Corine Fitzpatrick, AT LARGE (10)
Richard Fitzpatrick, Management/Marketing (08)
Robert Geraci, Religious Studies (08)
John Gormley, AT LARGE (09)
Moujalli Hourani, Civil Engineering/Environmental Engineering (09)
Shawn Ladda, AT LARGE (08)
Bruce Liby, Physics (10)
Bahman Litkouhi, Mechanical Engineering (10)
Bernadette Lopez-Fitzsimmons, Library (10)
James McCullagh, Chemistry (09)
Rocco Marinaccio, English (08)
Jeffrey Myers, AT LARGE (09)
Mary Noberini, Psychology (08)
George Prans, Electrical Engineering (09)
David Shefferman, AT LARGE (09)
Gregory Taylor, Mathematics (09)
John Tomer, Economics/Finance (10)
Mehmet Ulema, AT LARGE (08)
Kathryn Weld, AT LARGE (10)
Br. Andrew Winka, AT LARGE (10)
**Students (20)**
Kathryn Atiyeh, Student Government (08)
Robert Barrows, Student Government (08)
Melissa Bekisz, Student Government (08)
Andrew Elbrecht, President, Student Government (08)
Catherine Fitzgerald, Student Government (08)
Damien Germino, Student Government (08)
Matt Giordano, AT LARGE (08)
Lindsay Goyette, Student Government (08)
Daniel Mannarino, AT LARGE (08)
Michael Martello, Executive Vice President, Student Government (08)
Greg Martyn, AT LARGE (08)
Mary Morgan, Student Government (08)
Heather Mulholland, Student Government (08)
Genevieve O’Reilly, AT LARGE (08)
Kieran O’Shea, Student Government (08)
Ryan Scholl, Student Government (08)
Patricia Short, Student Government (08)
Daniel Siragusa, Student Government (08)
Tessa Yesselman, AT LARGE (09)

**Administration (14)**
Bro. Robert Berger, Vice President, Student Life
William J. Bisset, Jr., Vice President, Enrollment Management
Edward Brown, Dean of Science
Barbara A. Fabé, Vice President, Human Resources
Colette Geary, Dean of Students
Weldon Jackson, Provost
Robert A. Mahan, Vice President, Facilities Management
Thomas Mauriello, Vice President, Advancement
William J. Merriman, Dean of Education
Mary Ann O'Donnell, Dean of Arts
Thomas Ryan, Vice President, Finance
Gordon Silverman, Acting Dean of Engineering
James M. Suarez, Dean of Business
John Wilcox, Vice President, Mission

**Alumni (2)**
Thomas McCarthy, Alumni Relations
Michael McEney, Alumni Office

**THE COUNCIL FOR FACULTY AFFAIRS**

**Officers**
Bruce Liby, Chair
Terms concluding in 2007-2008:
Terms concluding in 2008-2009:
Deborah Adams, Kyungsub Stephen Choi, Winsome Downie, Moujalli Hourani, James McCullagh, George Prans, Gregory Taylor.
Terms concluding in 2009-2010:
Joan Cammarata, Lance Evans, John Tomer, Bahman Litkouhi, Bruce Liby, Bernadette Lopez-Fitzsimmons.

**Standing Committees of the Faculty**
(The President and the Executive Vice President and Provost are ex officio members of all faculty committees except the Grievance Committee and the Committee on Termination of Service.)

Curriculum Committee for School of Arts: Pamela Chasek, Daniel Collins, Winsome Downie, Robert Geraci, Jeffrey Myers, Michele Saracino, Mary Ann O’Donnell.
Curriculum Committee for School of Business: Ying Huang, Michael Judiesch, Fiona Maclachlan, Mary Michel, Carolyn Predmore, Marc Waldman, James Suarez.
Curriculum Committee for School of Science: Joseph Capitani, Lance Evans, Carol Hurwitz, Bruce Liby, Edward Brown.

**Staff (2)**
Grace Cabrera, School of Education
Margaret McKiernan, Library
Committee on Faculty Research Projects and Grants: Pezhman Akbari, David Bollert, Anirban De, Gregory Dorata, Mary Noberini, Marc Waldman.

Committee on Publications Board: Gregory Dorata, Seamus Freyne.


Committee on Sabbatical Leave: Raymond Antolik, Anirban De, Nand Jha, Christoph Lienert, John McCabe, Claudia Setzer, Nicholas Taylor, Kudret Topyan.

Committee on Summer Grants: Jeffrey Cherubini, Scott Lowe, Zella Moore, David Shefferman, Marc Waldman, Br. Andrew Winka.

Committee on Faculty Welfare: Alfred R. Manduley, Chair; Nada Assaf-Anid, Margaret Groarke, Zella Kahn-Jetter, Karen Nicholson, Luis Uffer.

Judiciary Committee on Student Affairs: Joan Cammarata, Jeffrey Cherubini, Colette Geary, Stacy Pober, Andrew Skotnicki, Lisa Toscano, Andrew Winka, FSC.


Faculty Grievance Committee: Joan Cammarata, Michael Judge, Julie Pycior, Catherine Shanley, Kudret Topyan.

Committee on Termination of Service: Seamus Carey, Joseph Fahey, Ann Marie Flynn, Hany Guirguis, Stacy Pober.

ADMINISTRATIVE OFFICERS AND STAFF

Br. Thomas J. Scanlan, F.S.C., Ph.D., President (1987–)

Ann C. Clohessy, B.S., Assistant to the President (1970–)

Academic Affairs

Weldon Jackson, Ph.D., Executive Vice President/Provost and Director of the Graduate Division (1996–)

Walter F. Matystik, J.D., Assistant Provost for Faculty Research and Computer Systems, Policy and Planning (1974–)

Mary Ann O’Donnell, Ph.D., Dean of Arts (1977–)

Edward B. Brown, Ph.D., Dean of Science (1964–)

James M. Suarez, Ph.D., Dean of Business (1984–)

Gordon Silverman, Ph.D., Interim Dean of Engineering (2007–)

William J. Merriman, Ph.D., Dean of Education and Human Services (1987–)

Cynthia T. O’Donnell, M.A., Coordinator of Academic Advisement/Academic Advisor for Business (1970–)

Rhonda Shuler, B.A., Academic Advisor for Arts (2007–)

Dianna H. Cruz, B.S., Academic Advisor for Arts (2002–)

Nancy Cave, Coordinator (1994–)

Loretta Wilkins, M.A., Academic Advisor for Education (2007–)

Darcy A. Lis-Beglane, M.A., Academic Advisor for Science (1983–)

Richard Schneider, M.S., Academic Advisor for Engineering (2003–)

Irene R. Snitkoff, M.A., Coordinator of the Office of Post Baccalaureate Studies (1999–)
Richard Musal, M.A., Coordinator of Technology and Training (2003–)

Lawrence Hough, M.A., Director of Radiological and Health Professions (1987–)
Program Coordinator Nuclear Medicine Technology (1980–)

Joanne Habenicht, M.P.A., Program Coordinator, Radiation Therapy Technology (1997–)

Maire I. Duchon, M.L.S., Director of the Libraries (1975–)

Catherine Shanley, D.L.S., Assistant Director of the Libraries (2007–)

Judith Slisz, M.A., M.B.A., Director of Assessment (2007–)

Amy Surak, M.A., Archivist (2002)

Luz M. Torres, M.S.Ed., Registrar (2006–)

Brigid McCausland, M.B.A., Associate Registrar (1992–)

Carla Fraser, Scheduling Officer (2002)

Alex Pinales, Report Coordinator (2006–)

Jeffrey Katz, M.S., Director of Continuing Education (1999–)

Ivan Agrest, B.S., Degree Completion Program Coordinator (1997)

Marilyn Carter-Stevens, M.S., Director of Academic Support Services and Higher Education Opportunity Program (1988–)

Elena M. Caminito, M.A., Assistant Director of Higher Education Opportunity Program (1989)

Anne Vaccaro, M.S., Coordinator of Specialized Resource Center/Learning Disabilities Specialist (1994–)

Computer Services

Janice A. Melino, Director of the Computer Center (1973–)

Jake D. Holmquist, B.S., Associate Director, Network Administrator (1998–)

Cynthia P. Duggan, Ph.D., Academic Support Administrator (1994–)

Randy Dixon, A.A.S., Systems Manager (1989–)

Robert Moran, Assistant Director (2001–)


Joseph Berger, Supervisor of Technical Computer Support Group (1980–)

Melvin Laskey, M.S., Programmer/Analyst (2000–)

Jason Cabon, B.S., Programmer/Analyst (2001–)

Stephen Galante, B.A., Network Engineer (2007–)

Kelvin Moreau, B.S., Programmer/Analyst (2006–)

Eileen McIntyre, M.B.A., CIS Laboratory Coordinator (1987–)

Ananda Das, B.S., Coordinator of Research and Development (2005)

Hattie Martin, JET Technician (2007–)

Ivan Irizarry, Network Technician (2006–)

Enrollment Management

William J. Bisset, Jr., M.Ed., Vice President, Enrollment Management (1997–)


Renata Williams, B.A., Admissions Counselor (2006–)

Dana Dubiel, B.A., Admissions Counselor (2005–)
Caitlin Read, B.A., Admissions Counselor (2006–)

Gabrielle Saiz, B.A., Admissions Counselor (2007–)


Natalie Hubbard, B.A., Admissions Counselor (2007–)

Russell Stevens, B.A., Admissions Counselor (2007–)

**Student Life**

Br. Robert Berger, F.S.C., Ph.D., Vice President for Student Life (1988–)

Colette A. Geary, Ph.D., Dean of Students (1997–)

Br. Ralph Bucci, M.F.A., Director of Residence Life (2007–)

Gail A. Dray, B.A., Associate Director of Residence Life for Operations (1989–)

Christine A. Gallager, B.S., Assistant Director of Residence Life (2005–)

Elaine T. White, B.A., Director of Student Development (1993–)

Elena De Coteau, B.S., Assistant Director of Residence Life (2005–)

Andrew Goodman, B.A., Director of Campus Events (1990–)

Debra L. Damico, M.A., International Student Advisor (1984–)

Marjorie J. Apel, M.A., Director of Career Development (1998–)

Doris Pechman, M.A., Assistant Director of Career Development (1998–)


Bernadette Blocker, B.S., Coordinator of Career Development (2006–)

Ann Rohan, M.S.E.D, Coordinator of Career Development (2001–)

Michael Carey, Psy.D., Health Services/Director of Guidance & Counseling (2006–)

Jennifer Mc Ardle, M.A., Assistant Director of Counseling (2000–)

Br. Timothy Murphy, FSC, M.A., Counselor (2004–)

Carl Franzetti, D.O., College Physician (2003–)

Joseph Maselli, M.D., College Physician (2003–)

Katherine H. Kyle, R.N., F.P.N., Nurse Practitioner (2003–)

Lois Harr, M.A., Director of Campus Ministry and Social Action (1998–)

Kevin C. McCloskey, M.S., Social Action Coordinator (1996–)

Fr. George Hill, M.Div., Chaplain/Campus Minister (2007–)

Juan E. Cerezo, Director of Security (1996–)

Robert J. DeRosa, B.S., Associate Director of Security/Risk Management (2005–)

Robert J. Byrnes, M.B.A., Director of Athletics (1988–)

Sandra Sapone, M.S., Associate Director of Athletics (1995–)

Katie Leighton, M.A., Academic Advisor for Athletes (2007–)

Stephan Dombroski, B.S., M.B.A., Sports Information Director (2008–)

Deborah Gregory, Business Coordinator (2000–)

Michael Cole, B.S., Operations Manager of Athletics (2005–)

Lindsey Perison, B.A., Compliance Coordinator (2008–)

Jason McFall, M.S., Recreational Coordinator (2008)
Business and Finance
Thomas J. Ryan, M.S., Vice President for Finance & Capital Projects (2007–)
Edward Keough, B.S., C.P.A., Director Student Financial Services (2000–)
Lisa Juncaj, B.A., Associate Director of Student Financial Services (1995–)
Mercy Lopez, B.S., Assistant Director Student Financial Services (2004–)
Christina Cardinale, B.S., Student Accounts Coordinator (2005–)
Chrisanne McGarvey, Student Finance Coordinator (2007–)
Migelly Tavarez, B.S., Financial Aid Counselor (2007–)
Richard J. Cardinale, B.B.A., Associate Director (1987–)
Ramon Jacques, I/A Technical Supervisor (2001–)
Judy Cases, Accountant (2001–)
Al Heyward, B.B.A., Grants Accountant (2001–)
Kathleen P. Hennessy, Payroll Manager (1987–)
George M. Kuzma, B.S., Business Manager (1996–)
Elena Mastrangelo, B.S., Buyer (2003–)

Human Resources
Barbara A. Fabé, B.A., Vice President of Human Resources (1988–)
Vicki M. Cowan, B.S., M.A., PHR., Director of Human Resources/Affirmative Action Officer (1989–)
Eileen Armstrong, Benefits Manager (2005–)

Facilities Management
Robert A. Mahan, B.S.M.E., Vice President for Facilities Management (1990–)
Richard E. McKeown, A.A.S., Director of Physical Plant (1997–)
Victor Schneider, Assistant Director of Physical Plant (1998–)

Mission
John Wilcox, Ph.D., Vice President for Mission (1974–)
College Advancement

Thomas Mauriello, M.S., Vice President for College Advancement (2006–)

Stephen White, M.S., Director of Development (2007–)

MaryEllen Malone, B.A., Director of Planned Giving (2003–)

Kathleen Muskopf, M.A., Director of Annual Giving (2007–)

Barbara A. Higgins, M.A., Coordinator of Research (1975–)

Ellie Calabro, B.S., Manager of Advancement Services (2007–)

Stephen D. Laruccia, Ph.D., Director of Major Gifts/Capital Campaign (2004–)

Ellen Kiernan, B.A., Director of Alumni Relations (2007–)

Thomas McCarthy, B.S., Assistant Director of Alumni Relations (2007–)

Grace H. Feeney, Alumni Relations Officer (1972–)

Lydia E. Gray, M.A., Director of College Relations (1980–)

Patricia Gunn-Doherty, Assistant Director, Special Events (1992–)

Kristen Cuppek, M.A., Assistant Director, Publications (2002–)

Scott Silversten, M.A., Communications Manager (2006–)

Gail A. Conklin, Events Officer (1993–)

Rose Spaziani, M.A., Publications Officer (2006–)

*Dates in parentheses indicate years of service in the College and not necessarily appointment to the current position.*
DEGREES CONFERRED

Honorary Degrees

COMMENCEMENT EXERCISES –
May 21, 2006

Doctor of Education
John M. Fahey Jr. ’73
President and Chief Executive Officer
National Geographic Society

SPRING COMMENCEMENT–
May 24, 2006

Doctor of Education
Brigid M. Higgins ’94
Educator and Philanthropist

FALL HONORS CONVOCATION –
October 15, 2006

Doctor of Laws
John F. O’Brien ’73, Esq.
Dean and Professor of Law
New England School of Law

COMMENCEMENT EXERCISES –
May 20, 2007

Doctor of Laws
Jan Crawford Greenburg
Legal Correspondent
ABC News

SPRING COMMENCEMENT –
May 23, 2007

Doctor of Science
Francis J. Lombardi, P.E.
Chief Engineer
The Port Authority of New York and New Jersey

FALL HONORS CONVOCATION –
October 14, 2007

Doctor of Science
George J. Galasso ’54, Ph.D.
Former Associate Director, National Institutes
of Health (NIH),
And Former Executive Director, Foundation for
NIH Research
DEGREES IN COURSE

July 1, 2006 – June 2007

School of Arts
Bachelor of Arts 145
Bachelor of Science 17

School of Science
Bachelor of Arts 8
Bachelor of Science 41

School of Engineering
Bachelor of Science in Chemical Engineering 17
Bachelor of Science in Civil Engineering 40
Bachelor of Science in Computer Engineering 17
Bachelor of Science in Electrical Engineering 14
Bachelor of Science in Environmental Engineering 7
Bachelor of Science in Mechanical Engineering 35

School of Business
Bachelor of Science (Business Administration) 171

School of Education
Bachelor of Arts 25
Bachelor of Science 89

Degree Completion Program
Bachelor of Science 81

Graduate Division
Master of Arts 27
Master of Science in Education 39
Professional Diploma 14
Master of Science in Chemical Engineering 14
Master of Science in Civil Engineering 13
Master of Science in Computer Engineering 6
Master of Science in Electrical Engineering 7
Master of Science in Environmental Engineering 0
Master of Science in Mechanical Engineering 7
Master of Science in Engineering (Environmental Engineering) 8

Total Degrees 842

ENROLLMENT SEPTEMBER 2007
Arts 767
Business 850
Education 465
Engineering 674
Science 168
Degree Completion 231
Graduate Division 399

Total Enrollment 3554
1. Memorial Hall
   Advancement/Alumni Relations
   Chancellor’s Room
   Charter Room
   Chapel of the Holy Infancy
   Human Resources
   Mission
   President
   Provost
   Registrar

2. De La Salle Hall
   Capalbo Room
   College Relations
   Dean, School of Business
   De La Salle Computer Center
   Business Manager

3. Miguel Hall
   Campus Ministry
   Carmen Rodriguez Room
   Controllers
   Counseling and Career Services
   Dean, School of Arts
   Dean, School of Education
   Student Financial Services

4. Smith Auditorium
   Chapel of De La Salle and His Brothers

5. Thomas Hall
   Student Center
   Dante’s Den—Dining Hall
   Dean of Students
   Faculty Dining Room
   Locke’s Loft—Dining Hall
   Plato’s Cave—Dining Hall
   Plato’s Annex
   President’s Dining Room
   Resident Life
   Student Activities
   Student Union Lounge

6. Hayden Hall
   Dean, School of Science

7. O’Malley Library
   Admissions
   Archives
   Cardinal Hayes Pavillion

8. Draddy Gymnasium
   Athletic Offices

9. Alumni Hall
   Fitness Center

10. Chrysostom
    Student Residence

11. Jasper Hall
    Student Residence
    Security
    Hair Salon
    Jasper Lounge

12. Horan Hall
    Student Residence
    Infirmary
    Mailroom

13. Leo Engineering
    Air Force ROTC
    College Bookstore
    Dean, School of Engineering
    Fischbach Room
    Scala Academy Room

14. Research and Learning Center
    Adult Degree Completion
    Computer Labs

15. Quigley House
    Student Residence

16. Overlook Manor
    Student Residence

17. Gaelic Park

18. Christian Brothers Center

19. Draddy Gym Parking
20. Jasper Hall Parking
21. Lower Forecourt
22. Upper Forecourt
23. Waldo Parking
24. Research and Learning Parking
25. West 240th Street Parking
26. Broadway Parking
27. W. 238th Parking

29. Leo Engineering Parking
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“When I came to Manhattan College, I knew it would prepare me for tomorrow’s challenges. The College puts you on the future’s front line. When you look at New York City, you see tomorrow: Tomorrow’s possibilities and opportunities. There’s no better place to live, to learn and to strengthen your ethics and values. The world comes to this city, which makes your Manhattan College education as global as it gets.”

Natalie Ivezaj ’05

“Your Manhattan College education is centered on experiential learning, which means you live it. One of the most unusual things about Manhattan College is the powerful focus and commitment to undergraduates and the nurturing of their values. You’ll have opportunities and access that are strengthened by a wealth of new labs, facilities, technology and learning spaces. And there is our one slightly larger classroom, with seating for 8.1 million people: We call it New York City.”

Yuuya Okawa ’06