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General Information

The Mission of Manhattan College

Manhattan College is an independent Catholic institution of higher learning that embraces qualified men and women of all faiths, cultures and traditions. The mission of Manhattan College is to provide a contemporary, person-centered educational experience that prepares graduates for lives of personal development, professional success, civic engagement, and service to their fellow human beings.

Established in 1853 by the Institute of the Brothers of the Christian Schools, the College continues to draw its inspiration from the heritage of John Baptist de La Salle, the innovator of modern pedagogy and patron saint of teachers. Among the hallmarks of this Lasallian heritage are excellence in teaching, respect for human dignity, reflection of faith and its relation to reason, an emphasis on ethical conduct, and commitment to social justice.

Historical Note

In May 1853, five Christian Brothers moved their small Canal Street school to what was then known as Manhattanville, a section of New York City at 131st Street and Broadway. The Brothers brought with them more than their furniture and their students. They were the bearers of a long educational tradition, going back to 17th century France and their founder, John Baptist de La Salle, designated by the Catholic Church as the Patron Saint of Teachers. He formed a community of religious Brothers who, unlike priests, would devote themselves as teachers to work for the wellbeing of the children of the artisans and the underprivileged. In the process he created a new type of school system that would transform teaching school into a profession and a vocation. The Brothers were urged to go beyond rote memory to “touch the hearts” of the students. Practical subjects were taught that would lead to a useful role in society; religion was taught to impart a commitment to Christian ethics.

Between 1853 and 1863, the school changed rapidly, adding college-level courses in 1859 and first using the name Manhattan College in 1861. It was chartered by the Board of Regents on April 2, 1863 and the first catalog stated its goals — to afford young people the means of acquiring the highest grade of education attained in the best American universities or colleges. While classical languages were thoroughly studied, prominence was given to higher mathematics and natural sciences, thus combining the advantages of a first-class College and Polytechnic Institute.

Manhattan College was an unusual institution. Its sponsoring Board of Trustees combined both secular independent members and representatives 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. As the school grew, new quarters were needed. The cornerstone of the “New Manhattan” was laid in 1922 on property bordered by the Hudson River and Van Cortlandt Park, its present location. The addition of new buildings and student residences has enlarged and enhanced the campus significantly. From this accessible site, 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 suburban campus environment.

Today Manhattan College identifies itself as a Catholic College in the Lasallian tradition. That tradition has continued to characterize the special educational experience offered by the College over its long history. Its constant focus has been the education of the disadvantaged. Manhattan has an enviable record in this regard, albeit engaged in the field of higher education. From its beginning, the College has paid particular attention to educating first-generation college students, and was an early proponent of access to disadvantaged and minority students, establishing special scholarship funds as early as 1938. That still holds true today for the impressive percentage of the student body that come from ethnic minorities. So many of our graduates who later on achieved great things in their careers remember that they might have had to leave school were it not for Manhattan’s financial assistance.

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, science and education. The quality of the undergraduate programs has been demonstrated by its record as one of the nation’s leading undergraduate sources of doctorates in the arts, sciences, engineering and education, and it is recognized by the establishment of chapters of such prestigious honor societies as Phi Beta Kappa, Sigma Xi, and Tau Beta Pi. Manhattan 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).

Over the years, an evolution has taken place in faculty representation. The predominantly Christian Brothers faculty has been replaced by predominantly lay teachers, and includes both men and women. The College became coeducational and accepted its first women undergraduate students in 1973. Currently, women number nearly half of the full-time undergraduate student body.

With the opening of Horan Hall (1990) and its twin East Hill (2008), the College now offers a four-year guarantee of resident housing and 80 percent of the student body chooses to live on or near campus, while the rest commutes. Currently, the College has a student body of approximately 3,500: 3,000 undergraduates and 500 graduate students. The student-faculty ratio is twelve 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.msche.org (http://www.msche.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 undergraduate programs in chemical, civil, computer, electrical, environmental, and mechanical engineering and the master of environmental engineering program are accredited by the Engineering Accreditation Commission (EAC) of ABET (www.abet.org).

The teacher education programs at Manhattan College are accredited by the Teacher Education Accreditation Council (TEAC). Recognized by the Council for Higher Education Accreditation and by the U.S. Department of Education, TEAC is a nonprofit group dedicated to improving academic degree programs for professional educators. Its primary work is accrediting undergraduate and graduate professional education programs in order to assure the public about the quality of college and university programs.

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, the American Assembly of Collegiate Schools of Business, 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.

**Purpose**

The Graduate Division of Manhattan College has for its primary purpose the offering of programs leading to academic and professional degrees through a coherent series of courses, discussions, seminars and independent studies or investigations, assisting the student to acquire an introduction into the mastery of knowledge, creative scholarship and basic research in a specific discipline.

The Graduate Division seeks to serve the American and International community by offering programs in professional areas, affording men and women the opportunity of acquiring a broader and deeper acquaintance with one field of knowledge, of learning the methods of productive scholarship, and of advanced study in their professions.

The Graduate Division seeks to provide the academic and professional needs for those who are already engaged in a profession as teachers, engineers, or those who having completed their undergraduate preparation desire to enter immediately into advanced study.

Because many of its students are pursuing a profession, the Graduate Division provides the opportunity of achieving the master degree on a part-time basis. It is possible to pursue full-time graduate study in most programs. The courses are generally conducted in the late afternoons, early evenings and Saturdays during the fall and spring sessions. The schedule will vary with the degree program. In general, Education courses are offered in the late afternoon and Engineering courses in the evenings.

**Organization**

The Graduate Division operates as an integral unit of the College under the oversight of the Provost of the College and the Deans of the Schools of Education and Engineering. Each graduate program is managed by a chair or a director who reports to the dean
General Information

of the school in which the program is housed. The Graduate Council is responsible for general policies affecting all graduate programs. The provost and the deans of the schools housing graduate programs constitute the Executive Committee of the Graduate Council. The Graduate Council includes, in addition to the members of the Executive Committee, all chairs or directors responsible for managing graduate programs.

The following degree programs have been approved and are registered with the Bureau of Evaluation, New York State Higher Education Department, under the HEGIS number listed:

### Education

<table>
<thead>
<tr>
<th>Program</th>
<th>ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master of Arts, Counseling Program</td>
<td>HEGIS 0826.1</td>
</tr>
<tr>
<td>Master of Science, Mental Health Counseling</td>
<td>HEGIS 2104</td>
</tr>
<tr>
<td>Professional Diploma in Counseling</td>
<td>HEGIS 0826</td>
</tr>
<tr>
<td>Bilingual Extension: School Counseling</td>
<td>HEGIS 0826</td>
</tr>
<tr>
<td>Bilingual PPS: ITI</td>
<td>HEGIS 0899.60</td>
</tr>
<tr>
<td>Master of Science in Education Administration &amp; Supervision</td>
<td>HEGIS 0828</td>
</tr>
<tr>
<td>Childhood Education/Special Education</td>
<td>HEGIS 0802</td>
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<tr>
<td>Special Education</td>
<td>HEGIS 0808</td>
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### Engineering

<table>
<thead>
<tr>
<th>Program</th>
<th>ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master of Science in Chemical Engineering</td>
<td>HEGIS 0906</td>
</tr>
<tr>
<td>Master of Science in Civil Engineering</td>
<td>HEGIS 0908</td>
</tr>
<tr>
<td>Master of Science in Computer Engineering</td>
<td>HEGIS 0909</td>
</tr>
<tr>
<td>Master of Science in Electrical Engineering</td>
<td>HEGIS 0909</td>
</tr>
<tr>
<td>Master of Environmental Engineering</td>
<td>HEGIS 0922</td>
</tr>
<tr>
<td>Master of Science in Environmental Engineering</td>
<td>HEGIS 0922</td>
</tr>
<tr>
<td>Master of Science in Mechanical Engineering</td>
<td>HEGIS 0910</td>
</tr>
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</table>

### Business

<table>
<thead>
<tr>
<th>Program</th>
<th>ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master of Business in Accounting</td>
<td>HEGIS 0502</td>
</tr>
<tr>
<td>Master of Business in Business Administration</td>
<td>HEGIS 0506</td>
</tr>
</tbody>
</table>
Application and Admission

Application procedures and admission requirements are described for each school in their respective sections of the Catalog.

Transfer Credit

A maximum of six credits for graduate courses completed at another institution prior to matriculation at Manhattan College may be granted if the courses are equivalent to those required at Manhattan College. The courses must have been taken within the five year period prior to acceptance as a matriculated student and have been awarded the grade of B or better. Request for such transfer credit must be made at the time of filing the application for admission. In general, credits that have been used to earn one degree may not be applied to the degree requirements of another degree. The request for transfer credit must be submitted to the Office of Admissions. Courses accepted for transfer credit will be noted on the Manhattan College academic record. However, the grades will not be counted in the Manhattan College grade point average.

Off-Campus Credit

It is understood that all courses for the degree must be taken at Manhattan College. For compelling reasons and in rare instances, however, a student may secure permission to earn a maximum of six transfer graduate credits at another institution transferable to the Manhattan College record. Written permission to take such work must be obtained by the student in advance from the chair or director and the dean of the school. When such a course is completed, the student must arrange for an official transcript to be mailed directly by the institution where the course was taken to the office of the program director or the dean of the school in which the student is enrolled and must pay the "Off-Campus Courses" fee per course before the course is entered on his/her academic record by the office of the Registrar. Only courses which have earned a B grade or better are transferable. A student who was granted six transfer credits on admission is not eligible for any further transfer of credits during his/her matriculation.

Registration

Students are required to officially register for each session in which they will be in attendance. Before the actual registration, students must submit a registration form approved by their program advisor. Payment must be provided in advance of the time of registration.

Online registration is available through the Self-Service system by logging onto the self-service.manhattan.edu site. Students may also register in person or by mail. Dates and instructions for registration will be included with the graduate schedule of courses published online and available in advance by the office of the Registrar or by the program advisor.

Late registration will not be accepted. Enrollment in a course is considered final after the first scheduled class in the fall or spring term and after the first two class meetings in the summer session.


**Maintenance of Matriculations**

Students not in attendance during a semester must register for "Maintenance of Matriculation" in the spring and the fall semesters.

**Course Changes**

Adding or dropping a course must be approved by the program graduate program director and processed in the Registrar’s Office before the second scheduled class. Refunds are subject to the policy stated in the catalog.

**Grades**

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>
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<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. A student’s request for an Incomplete must be submitted to the instructor before the end of the term or session. The instructor determines whether to grant the request. 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. Extensions for the completion of the work or the submission of the final grade will be granted by the dean only in highly unusual circumstances.

**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 is set by the Registrar for each semester. In "W" courses, neither quality hours or quality points are assigned.
**Thesis.** Indicates a Master’s Project or Thesis or Internship/Practicum/Field Experience that is not completed by the end of the semester in which the student has registered for.

**Grade Reports**

At the end of each semester every eligible student is issued a grade report that lists the courses taken, the grades earned in each course, and the semester and cumulative grade point averages.

**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 program director. 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 program director 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 program director 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 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 and/or program director 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. Except in the case of contested grades, all requests for correcting grades must be submitted by the 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 may disapprove of the request, indicating in writing the reasons why.
Academic Standing

Graduate students will be considered in good standing as long as they maintain a B (3.00) average in their course work. Graduate students are expected to have a minimum B grade point average before they are allowed to graduate. Course grades below B will lead to a lower overall average. If a graduate student receives a grade less than B in a second course, it will be necessary for the student to meet with the director of the program to discuss continued enrollment in the program. A failing grade in any of the student’s graduate courses is unacceptable performance. Any graduate student who receives a failing grade in a graduate course will be placed on academic warning. If a graduate student receives a failing grade in a second course, the student will be subject to dismissal.

Withdrawal from Course

Students who find it necessary to withdraw from courses must file the official withdrawal form with the director of the program. The W grade will not be given if the student withdraws after the published date for withdrawal. The withdrawal is dated when the office of the Registrar has been informed. No refund is given if a student withdraws from a course after the third scheduled class.

Incomplete Course Work

In extraordinary instances, when some requirement of a course has not been completed before the final examination, a student may be assigned the temporary grade of I (Incomplete Course Work), if, in the judgment of the teacher, a passing grade may be attained with the completion of the requirement. The I grade will be removed and a permanent grade assigned if the requirement is completed satisfactorily. If the requirement is not completed by the date specified in the academic calendar, (see discussion regarding Incomplete grades above) the I grade will be automatically changed to F. Students are responsible for making arrangements with the teacher to complete the requirement within the time permitted. For certain projects, Independent Study prerequisites, internships and other non-course work (which carry academic credit), students may have an additional session to complete the required work with the permission of the dean of the school.

Students who fail to complete their Master’s Thesis/Project by the end of the semester in which they are registered for will be issued the temporary grade of T. The T grade will be changed to a letter grade when the Thesis/Project/Internship/Practicum/Fieldwork is completed. The T grade is not assigned any quality points and is not computed in the student’s grade point average.

Semester Hour of Credit

Many three credit graduate courses meet for two hours of lecture once a week. To comply with the regulation of the Commissioner of Higher Education that there be fifteen hours of instruction for each semester hour or the equivalent, a third credit is granted for the successful completion of a course paper, an independent reading list, or some suitable project assigned by the professor. In addition to the two hours of lecture, the professor will
be available during a third hour to assist and direct the student. The student’s final grade for the three credits will reflect the response of the student to this third hour requirement.

Records

A report of the semester course grades can be viewed on Self-Service. Official and unofficial transcripts can be requested from the office of the Registrar in person, by mail or online at www.getmytranscript.com. The office of the Registrar cannot comply with telephone requests. All obligations to the College must be fulfilled before transcripts will be issued.

Requirements for the Degree

The requirements for a master degree for each of the programs are listed in the departmental sections. All requirements must be completed within the degree time limit.

Students who began graduate studies after January 1, 1989 must present a minimum grade point average of 3.00 within the specified departmental course requirements needed for their degree. If students do not achieve the required grade point average within those specified course requirements, they may take additional courses with the permission of the department chairperson or director of the program to achieve the 3.00 index.

Courses

To be awarded a master degree, a student must successfully complete a minimum of 30 to 49 credit hours of graduate course work, depending upon the requirements of the specific program. Because most graduate programs are part-time, many courses are offered in a cycle over two or more years. It is the responsibility of the student to register for courses in the sequence in which they are offered and to make the necessary progress to complete all the requirements within the five year time period.

Degree Time Limits

All requirements (courses, paper, projects, thesis) must be completed within the maximum of five years from the beginning of the semester of matriculation. The beginning semester of matriculation is the semester within which the candidate is awarded the first credits towards the degree whether they were earned as a non-matriculated or matriculated student. Candidates should plan their five-year program to assure the completion of all requirements within the five year period. Foreign students must be full-time students. They must complete the requirements for the degree within two years.

Termination of Matriculation

The dean of the school, on the recommendation of the graduate program director, may terminate the matriculation of any student who fails to make sufficient progress towards the degree or to cancel a student's registration if he/she is registered for courses for which he/she does not have the prerequisites.
Candidates for the degree not in attendance for two calendar years will have their matriculation terminated. To reactivate their matriculation, these candidates must receive permission from the dean of the school. Such candidates, if readmitted, are required to meet all degree requirements within the five-year period from the beginning of the semester of matriculation. If this is not possible, the candidate may have to complete additional courses and current degree requirements.

Conferring of Degrees

Degrees are conferred three times a year - September 1, February 1 and at the annual Commencement Exercises in May. Students who have completed their programs in September or February can receive their degrees in February. Students who complete their programs in May will receive their degrees at the Spring Commencement in May.

Veterans

The office of the Vice President of Student Life, located in Memorial Hall, is responsible for certifying any V.A. benefits. Veterans should bring a copy of their DD 214 to the office with their letter of acceptance into the Graduate Division. 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 after having registered, veterans must report to the office of the Vice President of Student Life to renew the certification of attendance at the beginning of each semester for which they are registered.

The following information is important:

- Veterans are paid benefits for actual credit hours in attendance. Nine semester hours is considered full-time for V.A. benefits in graduate school.

- Veterans who have not registered for any credit hours but are completing papers, writing a thesis, preparing for comprehensive, or completing a project, are not considered in attendance. Veterans are entitled to benefits for projects and thesis that have credit hours assigned, but only for the semester in which they have registered. Veterans whose project or thesis takes more than one semester are not entitled to benefits beyond the semester in which they have registered for it.

- Veterans are reminded that an I grade is not acceptable by the Veterans Administration.

- Any change of status withdrawal from a course, nonattendance in a particular semester, failure to register in a subsequent semester must be reported to the office of the Vice President of Student Life.
School of Engineering

Mission

The mission of the Manhattan College School of Engineering is to prepare students for a productive and rewarding career in engineering or a related profession.

Through Engineering Graduate Degree Programs and Graduate Engineering Certificates, the School of Engineering seeks to provide the academic and professional needs of those who are already engaged in engineering (or related) professions or those who, having completed their undergraduate preparation, desire to enter immediately into advanced study. Post-baccalaureate programs offered by the School of Engineering are intended to prepare professionals for advanced level technical and administrative positions or for admission to doctoral programs at other institutions. All these programs lead to the Master’s Degree and are available on a full-time or a part-time basis and also through the School of Engineering Seamless Master’s Program. Courses are generally conducted in the late afternoons or early evenings during the fall and spring sessions. Distance learning opportunities and Continuing Education Hour (CEH) opportunities for PE license registration are also available.

Application Procedures

Application forms for admission to all programs in the School of Engineering may be obtained from the Office of the Dean of the School of Engineering, from the School of Engineering Web site (www.manhattan.edu/academics/engineering/), or from the Office of Admissions. The completed form accompanied by the application fee (non-refundable) must be submitted to the Office of Admissions. Applicants for admission are responsible for having official transcripts of all undergraduate and graduate courses mailed directly to the Office of Admissions, paying the application fee, submitting letters of recommendation, and submitting required standardized test scores.

Official transcripts (not student copies) of all undergraduate and graduate records must be sent to the Office of Admissions by the institutions issuing them. Applicants who file an application before the baccalaureate degree has been conferred may be accepted pending the successful completion of their undergraduate work. A final transcript must be received in the Office of Admissions prior to course registration.

Graduates of Manhattan College should write to the Office of the Registrar requesting that an official transcript be sent to the Office of Admissions.

An application is not complete until all the necessary materials and application fee have been received by the Office of Admissions. Incomplete applications cannot be processed. Students who file an application and whose official transcripts arrive after the deadline date cannot be assured that their application will be processed in time for the semester for which they are applying.

Filing of the graduate application should be completed before May 1st for summer session application; August 10th for fall session applicants, and January 7th for spring session applicants. Students seeking admission into the full-time engineering programs must...
have their application for the fall session completed by March 1st if they are applying for a fellowship or scholarship for the fall semester.

A committee of the engineering program for which a person is applying reviews the application and supportive documents and forwards a recommendation to the Office of the Dean of the School of Engineering. That Office then informs the applicant of the decision. Those who have been accepted will receive the instructions for registration at the beginning of the session for which they have been accepted.

The documents submitted in support of application cannot be returned to the applicant nor can they be duplicated for any purpose. All documents received are part of the records of the College.

Admission

Applicants for admission into any graduate program in the School of Engineering must hold, before beginning graduate courses, a baccalaureate degree from an accredited college or institution acceptable to Manhattan College. In addition, they must meet the specific requirements as stated in the introduction to the respective programs. An undergraduate cumulative grade point average of 3.00 on a 4.00 scale is normally required for admission to all engineering graduate programs, although other factors can be considered in the decision for admission. Applicants may be requested to take the Graduate Record Examination for certain programs.

Admission into graduate engineering programs will be granted as a matriculated student, one seeking to fulfill the requirements for a degree. A student may be granted permission to take an approved graduate course on a non-matriculated basis or, in special cases, as an auditor. A non-matriculated student is one earning graduate credit for a specific course but not necessarily working for a degree. For example, the student may be interested in earning a Graduate Engineering Certificate (see below for details). For both non-matriculated and auditing students, tuition and fees are the same as for matriculated students.

A student who lacks undergraduate prerequisites for a specific program may be asked to satisfactorily complete certain undergraduate (bridging) courses as a non-matriculated student. When these courses are completed satisfactorily, the student may be admitted to matriculation.

Students requesting to take graduate courses as a non-matriculated student must have the necessary prerequisites for those courses. Students may not register for more than 12 credits as a non-matriculated student without the permission of the Dean of the School of Engineering.

All students must comply with immunization regulations as previously stated in the introductory section of the catalogue.

Students who take graduate courses at Manhattan College on a non-matriculated basis and apply thereafter for admission to a graduate program as a matriculated student will be informed at the time of acceptance which courses may be applied to that degree program.
Students who have earned a master’s degree or who are pursuing a master’s degree in one engineering program from Manhattan College and desire to seek admission into another program must file a new application with the Office of Admissions.

All documents of applicants who have been accepted and who for extenuating circumstances cannot register for courses during the session for which they were admitted will be kept on file for two years. The documents will be destroyed if the applicant does not register for courses within that period.

**Seamless Master’s Degree Program**

Outstanding undergraduate 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. Because 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, graduate assistantships, academic scholarships and grants, and industrial fellowships.

**Visiting Students**

Students who are matriculated in a graduate program at another institution and who wish to take a course (or courses) at Manhattan College may do so as non-matriculated students for individual courses for which they have the prerequisites. For non-matriculated students, tuition and fees are the same as for matriculated students.

**Applicants from Foreign Countries**

The College accepts students from foreign countries for its full-time graduate programs in the School of Engineering. Application procedures and admission criteria and information
School of Engineering

can be found in the individual sections of the catalog. In general, the College cannot accept these students into its part-time graduate programs. The student who is accepted and receives a student visa must be enrolled in each term of the academic year for 12 credits or, in special cases, a minimum of 9 credits. Such students must complete the program within 18 months.

Applicants from foreign countries should submit their admission application, official transcripts, and the admission fee four months before the beginning of the session they wish to enter. In addition, they must submit a notarized statement that they have sufficient funds to finance their education and their maintenance. Many of the sources of financial assistance are limited to the residents of the United States.

All students applying from foreign countries must take the TOEFL (Test of English as a Foreign Language) and have the test results sent to the Office of Admissions. A minimum TOEFL score of 80 (internet based exam), 213 (computer based exam), or 550 (paper based exam) will satisfy Manhattan College admission requirements and criteria for issuance of the I-20 form. However, admission and issuance of an I-20 form is also possible for students with TOEFL scores below 80, 213 or 550 levels for the internet, computer and paper based exams, respectively, provided they successfully complete an approved English as a Second Language course at another institution or an acceptable substitute at Manhattan College. The School of Engineering will also accept IELTS (International English Language Testing System) scores with a minimum of 6.0 on the 9.0 scale.

Foreign students graduating from a four-year undergraduate engineering program in the United States accredited by the Engineering Accreditation Commission (EAC) of ABET (www.abet.org) will not need to submit a TOEFL exam score. Similarly, graduates of undergraduate engineering programs in English speaking countries which are signatories to the Washington Accord with the USA (http://www.washingtonaccord.org/), specifically Australia, Canada, Ireland, New Zealand and the United Kingdom, will not need to submit TOEFL or IELTS scores.

A student from another country who is informed of acceptance must deposit $300 which will be credited toward tuition. This fee is non-refundable if the student does not register but will be credited to his/her account for two years. When the $300 is received, the student will be sent an I-20 form which must be presented to the United States authority to arrange for an F1 student visa.

Degree Requirements

All engineering graduate programs require a minimum of thirty credit hours of graduate course work. A minimum cumulative grade point average of 3.00 is also required. A student must remain in good academic standing, as described earlier in this graduate catalog, or the student will be subject to dismissal from the college. Other degree requirements are detailed under each graduate program description.

The Graduate Engineering Core Courses

Recognizing the growing importance of professional diversity among the engineering disciplines, graduate study at the School of Engineering emphasizes both breadth and depth in our students’ chosen field of study. The development of innovative graduate
engineering core courses allows students in all engineering graduate programs to enroll in courses designed to span a variety of engineering disciplines. These core courses are taught by engineering faculty from different disciplines and emphasize interdisciplinary approaches to the engineering course material. Students in all programs may enroll in these core courses thus exposing graduate students in any one discipline to students and faculty in other engineering disciplines. Permission of the Department Chair or Graduate Program Director is required to enroll in graduate core courses. In addition to the core courses, each program still provides discipline specific, advanced level courses that students need to complete their specialized degree programs.

Graduate Engineering Certificates

Modern engineering practice increasingly demands integration of knowledge and expertise from more than one engineering discipline. It is often desirable for the practicing engineer to acquire specific knowledge outside their area of expertise without devoting the time and effort to earn an advanced degree. To address these needs, the School of Engineering offers a Graduate Engineering Certificate Program through which various combinations of related courses from the Engineering Graduate Core and from departmental offerings can be used to complete the requirements for a Graduate Engineering Certificate in a particular area of study. While the Graduate Engineering Certificate is not an engineering degree, it does allow an individual, who is qualified to take the courses and meets any prerequisite requirements, an opportunity to acquire knowledge and expertise in a focused area of engineering in a relatively short period of time. Typically, an individual will be required to complete successfully three or four courses in a particular topical area to earn a Graduate Engineering Certificate. While approval of a Department Chair or Graduate Program Director is required to enroll in a graduate course, admission to the Graduate Program is not required to participate in the Certificate Program. It is expected, however, that individuals desiring to take graduate-level courses in the Certificate Program will have a baccalaureate degree in either an engineering field, a science or applied science field, or mathematics. Specific information regarding Graduate Engineering Certificates is available from the Engineering Dean’s Office or from individual Department Offices or on the School of Engineering website, www.manhattan.edu/academics/engineering/.

Continuing Education Hours

The School of Engineering is a New York State approved provider of Continuing Education Hours (CEH) for PE license registration. The School of Engineering offers a wide range of short courses in a variety of formats (e.g., on-campus, on-site) for Professional Engineers to earn Continuing Education Hours. In addition, graduate courses and other offerings will also generally count as CEH’s to be used for professional license registration. For details concerning short course offerings and schedules, contact the Office of the Dean of Engineering (718-862-7281) or visit the School of Engineering website (www.manhattan.edu/academics/engineering).
Chemical Engineering Graduate Courses

CHMG 529. Fuel Cell Systems and Technology. 3 Credits.

This course will review the technical and design aspects associated with various stationary and transportation fuel cell applications. Course material will focus on electrochemical kinetics, electrode catalysis, system thermodynamics, fuel processing, and H2 storage. Topics to be covered will include basic electrochemical principles of a unitized electrode assembly, the combination of multiple unitized assemblies into a cell stack assembly, the design of fuel and oxidizer supply systems, and safety issues related to the design and operation of fuel cell power plants. Prerequisite: Mass and energy balances, general electrochemistry and basic transport phenomena (momentum, heat and mass transfer). Three credits.

CHMG 539. Industrial Catalysis. 3 Credits.

Fundamentals and application of catalysts used in the chemical, petroleum and environmental industries. Students will learn: the application of chemistry, materials, surface science, kinetics, reactor design and general engineering as applied to making everyday products; how catalysts allow the effective production of transportation fuels, modern catalytic converters for automobiles, bulk chemicals, polymers, foods, fertilizers, etc. Industrially-oriented course for engineers and chemists. Prerequisite: Physical Chemistry. Three credits.

CHMG 549. Advanced Combustion and Fuel Process Technology. 3 Credits.

This course will review the technical and design aspects associated with various stationary and transportation fuel cell applications. Course material will focus on electrochemical kinetics, electrode catalysis, system thermodynamics, fuel processing, and H2 storage. Topics to be covered will include basic electrochemical principles of a unitized electrode assembly, the combination of multiple unitized assemblies into cell stack assembly, the design of fuel and oxidizer supply systems, and safety issues related to the design and operation of fuel cell power plants. Prerequisite: Mass and Energy Balance, general electrode chemistry and basic transport phenomena (momentum, heat and mass transfer). Three credits.

CHMG 575. Contemporary Food Engineering. 3 Credits.

This course examines the application of chemical engineering unit operations to food manufacturing. Topics include heating, cooling and freezing of foods; mass transfer in foods; reaction kinetics; chemical, microbiological and biochemical aspects of food engineering; dehydration, thermal and non-thermal processing; food handling, public health and sanitation; green and sustainable technologies in food processing; food packaging, transport, storage and shelf-life. Pre-requisites: CHML 208, 305, 306, 321.
CHMG 707. Process Thermodynamics. 3 Credits.

Emphasis on the application of thermodynamics to process design; development and use of thermodynamic principles in single-phase and multi-phase processes; applications in reactor design. Prerequisite: Undergraduate thermodynamics course.

CHMG 708. Advanced Heat Transfer Applications. 3 Credits.

This course will cover heat transfer mechanisms and modes for unsteady state and transient conduction, convection, and radiation in engineering systems. Applications include novel thermal and fluidic components and heat-exchange systems in the areas of alternative energy, green materials, food technology and bio-processing. Prerequisite: Undergraduate heat transfer course. Three credits.

CHMG 710. Advanced Transport Phenomena. 3 Credits.

Topics include continuum and molecular theories of matter; non-dimensionalization; velocity, temperature and concentration distributions in flow; boundary layer analysis; simultaneous momentum, energy and mass transport; mathematical analogies; simultaneous diffusion and chemical reaction. Prerequisite: undergraduate transport phenomena.

CHMG 713. Chemical Reactor Design. 3 Credits.

Application of engineering analysis, computer design and optimization of chemical reactor systems. Prerequisite: Undergraduate reaction engineering course.

CHMG 714. Modern Separation Processes. 3 Credits.

Mass transfer principles and design techniques applied to absorption and adsorption systems; gas-liquid, gas-solid and liquid-solid separation processes; mass transfer with chemical reaction; thermal effects; multi-component transfer. Prerequisite: Undergraduate mass transfer course.

CHMG 717. Process Simulation and Design. 3 Credits.

Applications of contemporary computer software to increase speed, improve comprehension, and enhance presentation; of results when analyzing, modeling and solving a wide variety of process design problems. Topics include design of fired heaters, bubble column reactors, generalized shell-and-tube exchangers, and multi-component condensers; FUG calculations for sloppy splits; and plate-to-plate calculations.
CHMG 726. Separation and Recovery Processes. 3 Credits.

Emphasis on non-thermal separation and recovery processes used primarily for solid-liquid separations. Topics include crystallization, precipitation, sedimentation, centrifugation, particle filtration, and microfiltration. Applications in chemical processing, industrial wastewater treatment and biological processing. Prerequisite: Undergraduate mass transfer course.”.

CHMG 727. Air Pollution Control Design. 3 Credits.

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; atmosphere dispersion and stack design; overview of gaseous control equipment.

CHMG 729. Hazardous Waste Incineration. 3 Credits.

Stoichiometric and thermochemical calculations; legislation, permitting and siting; other options; incineration of solid waste, sludge, liquid waste, and gases; land-based and ship-borne incineration; design of incinerators, quenchers, waste heat boilers, fans and gaseous control equipment; design project application.

CHMG 735. Independent Project Or Thesis. 3-6 Credits.

Chemical engineering project or thesis on selected topics, involving experimental research, process design, computer simulation, and/or authoring technical papers. Written report or publication, and oral presentation are required. Topic to be selected by the student with approval of a faculty advisor and the Chair.

CHMG 736. Independent Project or Thesis. 3-6 Credits.

Chemical engineering project or thesis on selected topics, involving experimental research, process design, computer simulation, and/or authoring technical papers. Written report or publication, and oral presentation are required. Topic to be selected by the student with approval of a faculty advisor and the Chair.

CHMG 739. Introduction to Design Project. 3 Credits.

Reaction path screening; exploratory technical and economic process evaluations; process synthesis; preliminary process flow diagram; material and energy balances; quick sizing design techniques and factored cost estimate; material selection. Written report or publication and oral presentation are required.
CHMG 740. Design Project. 3 Credits.

Preliminary equipment design techniques; computer-aided process optimization studies; hazards and safety evaluation; site location and layout studies; detailed economic evaluation. Written report or publication and oral presentation are required. Prerequisite: CHMG 739. Three credits.

CHMG 741. Special Topics. 3 Credits.

Special topics of current interest to graduate students; subject matter will be announced in advance of semester offering. Written report or publication and oral presentation are required.

CHMG 742. Seminar in Selected Chemical Engineering Topics. 3 Credits.

Seminar course in specialized and contemporary topics not covered in regular chemical engineering classes with an emphasis on written and oral communication skills. Topic examples are nanotechnology, genetic engineering, carbon trading, climate change, water and disease, financial engineering.

CHMG 743. Advanced Fluid Mechanics. 3 Credits.

A course focused on differential equations of motion for incompressible fluids. Major topics include tensor notation and vector calculus, linear and angular momentum conservation, scaling, Stokes flow, inviscid flow, boundary layer, vorticity, potential flow and lubrication. Prerequisites: MATH 203, CHML 208. Three credits.

CHMG 750. Emulsion Technology. 3 Credits.

Investigation of the following topics as applied in an engineering context: suspensions, emulsions and dispersion; stability, surfactants, and micelles; characterization; thickening and formulation. Applications include cosmetics, personal care products, adhesives, food technology, pharmaceutical and advanced coating formulations. Prerequisites: CHEM 310, 320; CHML 308 Three credits”.

CHMG 751. Industrial Regulations and Quality. 3 Credits.

Discussion of a variety of aspects of regulated and quality-driven industries: Regulations - CFR, regulating authorities, regulatory inventories, applications, compliance, and recalls; Quality Systems - Six Sigma®, GXP and TQM, documentation, measurement, safety, training, and cleanliness; Quality Control Techniques - Validation, ASTM testing, run rules, control charts. Prerequisites: senior status. Three credits.
CHMG 752. Advanced Processing Theory. 3 Credits.

The theory of multiphase and reactive flow processes, including: non-newtonian and time-dependant flow, heat transfer at boundaries, powder and solids processing, surface forces, phase transitions, ripening and sintering, flow with chemical transformations. Applications include cosmetics, personal care products, adhesives, food technology, pharmaceutical and advanced coating formulations. Prerequisite: CHML 411 or CHMG 511.

CHMG 753. Advanced Processing Techniques. 3 Credits.

Applications of advanced processing techniques for multiphase processes, including: multiphase flow, pumping, mixing, homogenization, atomization, drying. Applications include cosmetics, personal care products, adhesives, food technology, pharmaceutical and advanced coating formulations. Prerequisite: CHML 403.

Civil Engineering Graduate Courses

CIVG 505. Wood Structures. 3 Credits.

Mechanical properties of wood; orthotropic nature of wood as a material, dimensional instability, susceptibility to biological deterioration, implications of duration and types of load. Design of solid, laminated and composite beams, columns, shear walls, diaphragms, roofs, and trusses. Behavior and design of mechanical connections. Introduction to light framed wood structures, arches, bridges, and other timber structures. Prerequisite: senior standing and permission of the Chair. Three credits.

CIVG 506. Tunneling. 3 Credits.

This course provides analysis, design and construction issues for the tunneling in soils and/or rocks. The special areas covered included planning, rock mass classification, rock failure mechanisms, initial evacuation supports, design considerations for permanent linings, tunnel evacuation methods, ground-water control, ground control measures, and tunnel security. The design considerations of high pressure water tunnels are also discussed including selection of permanent liners, coupled hydromechanical behavior of jointed rock mass and evaluation of hydrojacking potential. Finally, tunnel security against earthquake, fire, and explosion, which is one of the Nation's current important concerns, is discussed. Prerequisite: senior standing and permission of the Chair. Three credits.
CIVG 508. Structural Renovation. 3 Credits.
In renovation, repair, retrofit, or adaptive reuse projects on existing structures, practicing engineers are faced with unique challenges that often require a combination of in-depth knowledge of material properties and durability, construction practice and detailing (including historic construction systems), and structural analysis and design. This course will offer a review of various aspects of structural repair and rehabilitation projects, while examining structures, components, and systems of various types and materials. The students will learn about challenges of investigation, typically the first step in any repair and rehabilitation project on existing structures. Use of visual, non-destructive, and destructive investigative methods will also be discussed. Then, focus will shift to a review of available information sources, known deterioration mechanisms, recognized repair techniques, as well as typical strengthening and alteration options as they apply to repair and rehabilitation projects involving various structure types (concrete, steel, wood, and masonry). Finally, the course will focus on a review of options for repair and retrofit of building lateral systems and facades.

CIVG 756. Fracture and Fatigue. 3 Credits.
Comprehensive study of fracture and fatigue failures of structural system; fracture mechanics of steel structures; fatigue crack initiation and propagation; fatigue of welded structures; corrosion and nondestructive investigation.

CIVG 757. Advanced Study in Civil Engineering. 3 Credits.
Individual study of selected advanced topics in civil engineering under the supervision of a faculty member.

CIVG 772. Hydrology. 3 Credits.
Hydrologic cycle, interception, infiltration, evapotranspiration, measurement an analysis of precipitation; design hyetograph, unit hydrographs-analysis, synthetic generation of unit hydrograph; measurement and analysis of runoff, synthetic generation of flow, analysis of stream gages, statistical and probability analysis of stream flow, regional frequency analysis; probable maximum precipitation, probable maximum floods; flood routing methods and applications; hydrologic study of complex stream network.

CIVG 773. Hydropower Engineering. 3 Credits.
Fundamentals of water power equation, schemes of water power development, analysis of stream flow data, flow duration curve, power duration curve, mass curve, firm power; selection of turbine, passages and power houses; appurtenances for hydro plants; conservation, economic and environmental aspects.
CIVG 777. Advanced Structural Analysis I. 3 Credits.
Review of classical methods of structural analysis; matrix formulations; arch analysis; influence lines for indeterminate structures by the Muller-Breslau principle and numerical methods; limit analysis of simple structures; cable support structures.

CIVG 778. Advanced Structural Analysis II. 3 Credits.
Analysis of frameworks under dynamic loads; computation of mode shapes and frequencies; calculation of response using model superposition and numerical methods; the use of response spectra for seismic analysis; buckling of structures using the geometric stiffness matrix. Prerequisite: CIVG 777 or equivalent.

CIVG 779. Design Steel Structures. 3 Credits.
Review of load specifications and design philosophy; design of single and multistory rigid frames; behavior of connections and the influence of connections on member behavior; moment-rotation curves; composite construction; light gage steel. Prerequisite: CIVG 777 or equivalent.

CIVG 780. Long Span Metal Structures. 3 Credits.
Classical forms of long span bridges; loads on bridges; suspension systems; cable-stayed bridges; space frameworks; orthotropic bridge decks; box girder bridges. Prerequisite: CIVG 779 or equivalent.

CIVG 781. Special Topics in Structural Engineering. 3 Credits.
Special topics in structural engineering of current interest to graduate students; subject matter will be announced in advance of particular semester offering.

CIVG 784. Reinforced Concrete Structure I. 3 Credits.
Research on the concrete stress-strain curve; specimen-testing machine interaction; micro-cracking; time-dependent strain in concrete; creep and shrinkage; ultimate strength analysis of reinforced concrete members; diagonal tension failure of reinforced concrete beam, design of determinate and indeterminate pre-stressed concrete structures. Prerequisite: CIVG 777 or equivalent.

CIVG 785. Reinforced Concrete Structure II. 3 Credits.
Cracking in beams and slabs; torsion of reinforced concrete beams; yield line theory of slabs; shear-wall construction and its application to the design of tall concrete structures; immediate and sustained deflections; problems in the design of multistory reinforced concrete structures. Prerequisite: CIVG 777 or equivalent.
CIVG 786. Ground Improvement. 3 Credits.

Comprehensive coverage of technologies used to modify the engineering properties of earth and non-earth materials both in situ and artificially placed. Overviews of the use of waster and manufactured non-earth materials as alternatives for backfills and fills, and the use of geosynthetic tensile reinforcement. Prerequisite: CIVL 308 or equivalent.

CIVG 787. Special Topics in Geotechnical and Geoenvironmental Engineering. 3 Credits.

Special topics in geotechnical and/or geoenvironmental engineering of current interest to graduate students and engineers in practice. Subject matter will be announced in advance of particular semester offering. Permission of the instructor.

CIVG 789. Advanced Geotechnical Applications: Foundations. 3 Credits.

Detailed consideration of the application of geomechanics principles to the analysis and design of shallow and deep foundations including footings, mats, piles, drilled shafts, and modern hybrids (piled rafts). Overviews of site characterization, criteria for selection of foundation alternatives, allowable settlements, construction and constructability. Prerequisite: CIVL 308, 438, or their equivalents.

CIVG 791. Advanced Geotechnical Applications: Earth-Retaining Structures. 3 Credits.

Detailed consideration of the application of geomechanics principles to the analysis and design of earth-retaining structures including basement walls, rigid retaining walls, modern internally-reinforced structures (MSEW, SRW, soil nailing), cantilever and anchored bulkheads, braced excavations, and cellular structures under both gravity and seismic loading. Introduction to state-of-art concepts such as controlled yielding using geofoam compressible inclusions. Prerequisite: CIVL 308, 438, or their equivalents.

CIVG 792. Earthworks Design. 3 Credits.

Detailed consideration of the application of geomechanics principles to the analysis and design of unsupported slopes including natural slopes, cut slopes, embankments, earth dams, and levees. Introduction to the use of geosynthetic tensile reinforcement for basal reinforcement, RSS and soil nailing. Prerequisite: CIVL 308, 438, or their equivalents.

CIVG 796. Elastic and Inelastic Stability of Structures. 3 Credits.

Elastic and inelastic buckling of axially loaded members; lateral buckling of beams; energy methods; flexural-torsional buckling of centrally and eccentrically loaded columns of open cross section in the elastic and plastic ranges.
CIVG 797. Advanced Geomechanics. 3 Credits.
Advanced topics in soil mechanics including effective stresses under partially saturated conditions, advanced constitutive models, vibratory loading, and seismic liquefaction. Prerequisite: CIVL 308 or equivalent.

CIVG 798. Site Characterization and Design. 3 Credits.
Detailed consideration of the processes and methodologies for determining soil and rock properties for a wide variety of geotechnical applications for both simple and complex projects. The role of pre- and post-construction design verification in practice using centrifuge testing and in-situ instrumentation. Prerequisite: CIVL 308, 438, or their equivalents.

CIVG 799. Theory of Plates and Shells. 3 Credits.
Analysis of plates loaded transversely and in their plane; general theory of shells of revolution; shallow shells; membrane theories of shells; Levy’s method; theory of folded plates; solutions using finite difference methods.

Construction Management Courses

COMG 602. Introduction to Construction Management. 3 Credits.
Techniques for the decisions and actions of the various participants involved in the design and construction of civil engineering projects; techniques used in estimating, planning, coordinating and controlling time, cost, quality and usage.

COMG 605. Construction Planning and Scheduling. 3 Credits.
This course deals with the planning and control of construction projects. This course will cover topics on time schedules for materials, labor, equipment, expediting material delivery and bar charts. Emphasis on the theory behind the scheduling techniques used in the construction industry such as Critical Path Methods (CPM), precedence diagrams and Program Evaluation Review Techniques (PERT).
COMG 606. Building System Design. 3 Credits.

In this course, students will gain familiarity with the various systems required within buildings. Students will gain knowledge of various code issues as they relate to buildings and building construction. Systems covered will include, Mechanical & HVAC, Electrical, Plumbing/Sanitary, Fire Production, and Life Safety. The course will also address the interaction between building systems as they relate to the Architectural and Structural components of buildings. The course will also address the evolution of building systems, and what to expect in the coming years. At the completion of this course, students will be able to identify as well as understand the purpose of the major components of building systems and understand how they relate to the overall building.

COMG 608. Construction Quality and Safety. 3 Credits.

In this course, students will take a practical look at project safety issues, OSHA 1926, site specific Health and Safety Plan (HASP) Quality Plan, Qualilty Assurance, Quality Control.

COMG 610. Construction Law. 3 Credits.

The American Jurisprudential System as it applies to the management of the construction process; principals of contract formation, subcontracts and contract documents; public works bidding and the Wicks Law; contract performance, suspension and termination; surety bonds; changed conditions, extra work, change orders and claims; time of performance, delay and acceleration; mechanic’s liens and trust funds; design professionals’ duties and liabilities; insurance and warranties; Alternative Dispute Resolution, including mediation and arbitration.

COMG 611. Environmental Impact Assessment for Construction Projects. 3 Credits.

To provide the student with an introductory overview of the environmental law system including the legal & regulatory process. To acquaint the student with the major Federal (e.g. NEPA), state (e.g. SEQRA), & local (e.g. CEQR, ULURP, zoning) environmental impact legislation and procedures affecting the practice of engineering. To provide the student with the tools necessary to find, understand, use and comply with relevant laws, regulations, codes, forms, premitting, etc. To familiarize the student with real world practice applications of environmental laws and regulations to major construction projects. To enhance understanding of the interaction of the environmental law system with engineering through case studies.

COMG 612. Marketing and Finance of Engineering Projects. 3 Credits.

Formulation of financial techniques for solution of viability of engineering projects; typical subject material includes development and use of Internal Rate of Return and Net Present Value. Presenting an understanding of marketing, its components and how the construction manager/engineer fits into the corporate marketing equation.
COMG 614. Contracts and Specifications. 3 Credits.
Fundamental concepts of contract law. Types and selection of contracts, e.g. construction. Procedures for advertising, awarding and administering contracts. Specifications and their cost impacts. Liability of engineers. Engineering professional services.

COMG 615. Project Controls. 3 Credits.
The course will start with a discussion of Project controls systems involved in Design and Construction of Projects. It will then move into an introduction and examination of two specific Control Systems. First CPM Scheduling including Cost/Resource loading. The student will become intimately familiar with the industry’s leading methodology of scheduling for design and construction. The student can expect to become conversant with the terminology, calculations and computer reporting utilized in CPM Scheduling. Finally the course will examine Cost Engineering aspects for Design and Construction Industry. The student can expect to become conversant in Labor Budgeting and Variance Analysis for a Design/construction firm’s effort and the Cost Engineering aspects for Construction of a project.

COMG 616. Construction Estimation. 3 Credits.
A key parameter for all types of construction emerges from the answer to the fundamental question: How much is the work expected to cost?” This course examines the process used by the construction industry to arrive at an answer and how the result fits into the overall construction process. Key concepts covered include quantity and quality takeoffs.

COMG 617. Fire Protection Piping System Design. 3 Credits.
Design Fire Protection Piping Systems with an emphasis on water based piping systems. Analyze occupancy and construction classifications for existing and new buildings using the New York State and the New York City Building Code. Determine appropriate system type to be installed in specific hazards environments. Design fire protection piping systems to meet the architectural and structural requirements. Determine design area of applications for the systems being installed. Understand type of piping configurations and advantages of each. Determine water supplies required for each type of building occupancy.

COMG 618. Safety and Environmental Issues in Construction for Engineers. 3 Credits.
This course presents an overview of safety and environmental issues related to construction. Included are a review of the federal Occupantional Safety and Health Administration (OSHA) construction safety standards as well as an introduction of specific safety and environmental construction related issues such as regulated substances that may be encountered and green building (LEED) certification.
COMG 619. Temporary Works in Heavy Construction. 3 Credits.

Course provides an overview of contractors temporary works means in heavy underground construction. This course will include the engineering design of these temporary works. Temporary works are normally the full responsibility of the contractor. However, an understanding of the selection and design of temporary works by contractors is also vital to owners and consulting engineers because they directly influence the constructability and cost of their projects. This course will include: geotechnical parameters and design loadings in temporary works; the design of support of excavation systems including soldier pile and lagging, sheet piling, concrete diaphragm (slurry wall) and secant wall; monitoring and settlement analysis of structures adjacent to excavations; soil improvements and grouting; dewatering; underpinning, and initial supports in rock and soft ground tunnels.

COMG 620. Construction Project Delivery. 3 Credits.

This course will address the fundamentals of completion of a Construction Project. It will provide guidance on the setting up of a project, developing a project plan, putting together a team from the various groups, such as legal, environmental, real estate, public affairs, all associated engineering disciplines, estimating, scheduling, construction management, procurement, quality assurance, safety, financing, operations and associated stakeholders. The course will describe how budgets and schedules are established and used to drive the project. The course will also cover what should be included in a project plan and in monthly reports. At the completion of the course, the students will have an understanding of the various aspects of Project Management and how the Project Manager is able to bring them together so they function as one, much as a conductor does with an orchestra.

COMG 621. Managing Civil Infrastructure Systems. 3 Credits.

Examination of the fundamentals of infrastructure planning and management with a focus upon the application of rational methods that support infrastructure decision-making; institutional environment and issues; decision-making under certainty and uncertainty; capital budgeting and finance; group decision processes and elements of decision and finance theory.
COMG 622. Construction Accounting and Finance for Development. 3 Credits.

This course gives an overview of the uses of accounting and financial analysis in decision making in a construction and development environment. The course will help construction professionals – both those who are working in the construction industry and those seeking degrees in construction management – learn how the principles of accounting and financial management can be adapted to and used in the management of construction companies and project management. Students will review accounting concepts, rules, regulations and report requirements as they apply to construction and development and discuss the financial tools needed to understand the financial statements and financial positions of development and construction projects. This course requires minimal proficiency in the use of the Hewlett-Packard HP 12C calculator and EXCEL or their equivalents.

COMG 623. Capstone Construction Management. 3 Credits.

This capstone course examines the full range of services which constitute professional construction management as defined by the Construction Management Association of America (CMAA). The CMAA Construction Management Standards of Practice will be utilized as a framework for further development of student core competencies in Cost, Time, Quality, Safety, Contract and Project Management as well as in the roles and responsibilities of the Construction Manager as a Professional. By taking this course, students planning to pursue CM certification will be in position to better gauge their respective areas of strength versus those that may need additional concentration to successfully complete the certification process. Course Prerequisite: COMG 602, 614, 615.

COMG 625. Special Topics in Construction Management. 3 Credits.

Construction Management project on selected topics, involving the application of the state-of-the-art practices in construction management in the public and private sectors. Written report or publication, and oral presentation are required. Topics to be selected by the student with approval of a faculty advisor and the Program Director.

Electrical and Computer Engineering Graduate Courses

ECEG 520. Computer Architecture I. 3 Credits.

Evolution of computer architecture from the Von Newmann concepts and the CISC machines to the RISC machines. Hardware and Software design methods. Processor design; Data representation and instruction sets. Control design: Hardware and Microprogrammed. Memory organization: Virtual segmentation and cache; system organization: Bus control, I/O and operating systems.
ECEG 547. Optical Information Processing Systems. 3 Credits.
Response of linear spatially invariant systems; singal detection by matched filtering, mutual coherence, transform properties of linear optical imaging systems; optical information processing and filtering; linear holography.

ECEG 548. Fiber Optics Communication. 3 Credits.
Optical fiber structures and physical characteristics; electromagnetic waveguiding properties and modes, fiber materials, loss mechanisms, and dispersion. Semiconductor laser and LED sources and photodetectors. Connectors, Fiber measurements, communication aspects of fiber transmission. Fiber system examples and design procedures.

ECEG 701. Signals, Systems and Transforms I. 3 Credits.
Description and analysis of continuous-time signals and systems in the time and the frequency domains; Laplace transform; inversion of transforms by complex integration; application to lumped and distributed parameter systems; analysis of continuous-time linear systems using state space techniques; controllability and observability; stability analysis.

ECEG 702. Signals, Systems and Transforms II. 3 Credits.
Discrete-time signals and systems; discrete convolution; sampling and quantizing; Z-transform; discrete Fourier transform; Fast Fourier transform; state space techniques for discrete-time systems; controllability and observability; stability.

ECEG 706. Radiation and Optics. 3 Credits.
Radiation and simple radiating systems, wave optics, interference and diffraction: first order and higher order coherence functions; Fourier optics, properties of coherent optical beams.

ECEG 709. Linear Mathematical Methods. 3 Credits.
Matrix calculations; linear systems and linear vector spaces; operators and their representation; function of operators and matrices; systems of differential equations; Eigen function representations; electrical engineering applications.

ECEG 710. Probability and Stochastic Processes. 3 Credits.
Random variables; distribution and density functions; functions of random variables; random processes; stationarity, ergodicity; correlation functions and power spectra; noise theory; system analysis with stochastic inputs; Gaussian, Markoff and Poisson processes.
ECEG 715. Power Systems. 3 Credits.

Analysis, design and applications of analog integrated circuits. Operational amplifiers, voltage regulators, VCOs, phase locked loops and circuits for consumer electronics are considered. Design principles, including feedback theory and computer aided design are investigated and implemented in computer calculations.

ECEG 721. Embedded Systems. 3 Credits.

Design of embedded systems including system level modeling/specification, and architecture synthesis, compilation for area/power/performance, code compression, scheduling and real-time operating systems, and verification and functional validation of embedded systems. Case studies and platform based design encompassing microcontrollers/digital signal processors, distributed computing and peripherals.

ECEG 722. Switching and Automata Theory. 3 Credits.

Analysis and synthesis of finite state machines; Turing and universal machines; information loss less machines; modular realization of machines; introduction to machine languages and computability.

ECEG 723. Software Engineering. 3 Credits.

The evolution of programming from art to science. Program design tools and techniques; structured programming and modular design; complexity, storage, and processing-time analysis; program testing and debugging; software reliability, repair and availability.

ECEG 724. Computer Architecture II. 3 Credits.

Computer Systems; multi processors and pipelined processors; array processors; computer networks; techniques for analysis of computer systems.

ECEG 725. Microprocessor Systems. 3 Credits.

Detailed study of the 8086 and 68000 families of 16-bit microprocessors, including their architecture, instruction sets, programming, interfacing, and interrupt handling. Applications to communications, control, and instrumentation. Selected additional topics such as bit-slice microprocessors and graphics processors. Prerequisite or Co-requisite: ECEG 520 or equivalent or approval of Instructor.
ECEG 726. Transmission of Digital Data. 3 Credits.


ECEG 727. Computer Networks. 3 Credits.

A structured coverage of Data and Computer Communications Networks. Protocols from the physical and data link layers to the applications layer. Network modeling and fundamentals of performance analysis. Time delay and reliability. Design issues, tools, and procedures regarding capacity assignments, terminal assignment, and switching node location. Routing. Examples from high speed Local Area Networks, Internet, Asynchronous Transfer Mode, and Wireless Networks.

ECEG 728. Operating Systems. 3 Credits.

A study of the modular design of operating systems; the concept of interrupts, multiple processors and I/O programming; memory management techniques, demand paging and virtual memory; job scheduling algorithms, race conditions between processes; file systems, analytic tools for the evaluation of operating systems. Prerequisite: ECEG 520 or equivalent.

ECEG 729. Artificial Intelligence. 3 Credits.

Basic concepts; model of the graphics display and user interface; point-plotting techniques and line drawing displays; two dimensional transformations; windowing and clipping; graphical input devices and techniques; event handling; raster graphics; display hardware; three dimensional graphics; realism and modeling; curves and surfaces; transformation, perspective; hidden surface elimination and shading. Graphics projects carried out in the E.E. Computer Laboratory. Prerequisite: ECEG 520 or equivalent.

ECEG 730. Compiler Design. 3 Credits.

Overview of compilers; programming languages and the syntactic specification of programming languages; lexical analysis, parsing techniques; top down parsing; recursive descent parsing; shift-reduce parsing; error recovery techniques; code generation and optimization; design and implementation of a compiler carried out as a class project. (Required is knowledge of a high level programming language- Fortran, Basic, PL/I.).

ECEG 731. Control Systems. 3 Credits.

Multivariable systems; controllability and observability; observer design and pole assignment; stability analysis.
ECEG 732. Optimal Control Theory. 3 Credits.
Performance measures: dynamic programming and its application to optimal control problems; calculus of variations; minimum principle; numerical techniques for finding optimal controls and trajectories. Prerequisite: ENGG 630.

ECEG 733. Digital Control System Analysis and Design. 3 Credits.

ECEG 735. Direct Energy Conversion. 3 Credits.
Principles of energy conversion; thermoelectric, photovoltaic, and thermionic generators; magneto-hydodynamic power generators: solar and nuclear energy conversion.

ECEG 736. Power Systems I. 3 Credits.
Steady state operation of electric power systems: power network representation; load flow analysis; economic dispatch and steady state control of energy systems.

ECEG 738. Power Systems II. 3 Credits.
Analysis of faulted power systems; symmetrical and asymmetrical systems; transient stability, emergency control and system protection. Prerequisite: ECEG 736 or approval of Instructor.

ECEG 740. Electro-Optics. 3 Credits.
Propagation of rays and beams, optical resonators; theory of laser oscillation; modulation of laser beams; optical detection.

ECEG 741. Quantum Electronics. 3 Credits.
Interaction of radiation with matter, spontaneous and simulated emission and absorption; semi-classical theory of lasers; traveling wave and cavity lasers; laser saturation; noise limitation of light detectors and amplifiers.

ECEG 744. Signal Detection and Estimation. 3 Credits.
Hypothesis testing; decision criteria: North and Wiener filtering; detection and estimation of signals with known and random parameters in white and colored Gaussian noise; recursive estimation of constant and time-varying signal parameters; Kalman-Bucy filtering; applications to communication systems, radar and biological signal processing. Prerequisite: ECEG 710.
**ECEG 746. Digital Signal Processing. 3 Credits.**

Discrete time signals and systems analysis' infinite and finite impulse response digital filter design techniques, random discrete time signals and spectral analysis, detection and estimation of signals in noise Kalman filters.

**ECEG 750. Antenna Engineering. 3 Credits.**

Analysis and design of various antenna types such as dipoles, horns, reflectors, apertures, microstrip and wire antennas. Electronically scanned arrays. Radiation pattern antenna impedance, gain, directivity, bandwidth, beam width, and frequency dependence. Reciprocity between receiving and transmitting antennas. Amplitude tapering to achieve desired sidelobe characteristics.

**ECEG 751. Microwave Circuits. 3 Credits.**

Transmission lines and waveguides; circuit representation of waveguide systems using impedance and scattering formulation, impedance transformation and matching; Faraday rotation in ferrites; passive microwave devices; terminations; attenuators, couplers, circulators, the magic tee; emphasis on developing a circuit viewpoint for analyzing microwave devices.

**ECEG 762. Modeling and Simulation. 3 Credits.**

Review of probability distributions; random number testing and generation; mathematical models; Markov chains; simulation methods; data analysis; Monte Carlo methods.

**ECEG 763. Data Structures and Computer Algorithms. 3 Credits.**

Sequential and parallel algorithms for non-numerical and numerical applications. Algorithm complexity analysis, basic data structures, searching, sorting graph, and numerical algorithms.

**ECEG 764. Data Base Management Systems (DBMS). 3 Credits.**

Software and hardware design problems for DBMS; an overview of data base systems, data manipulation languages, normal forms, machine architectures.

**ECEG 792. Advanced Projects in Electrical or Computer Engineering. 3 Credits.**

A project course of an advanced nature conducted by assigning individual investigations to be performed by the student under the supervision of a staff member; consists of theoretical and experimental investigations in specialized fields of electrical engineering of interest to the student.
ECEG 793. Advanced Study in Electrical or Computer Engineering. 3 Credits.
Individual study of a selected topic in electrical engineering under the supervision of a staff member.

ECEG 794. Selected Topics in Electrical Engineering. 3 Credits.
Topics of current interest to graduate Electrical Engineering students; subject matter will be announced in advance of semester offering.

ECEG 795. Special Topic: in Computer Engineering. 3 Credits.
Topics of current interest to graduate Computer Engineering students; subject matter will be announced in advance of semester offering.

ECEG 796. Special Topic: in Electrical and Computer Engineering. 3 Credits.

Engineering Graduate Courses

ENGG 610. Numerical Methods in Engineering. 3 Credits.
Formulation of numerical techniques for solution of engineering problems; typical subject material includes linear and nonlinear equations, systems of equations, boundary value and initial value problems in ordinary and partial differential equations, matrix algebra, etc. Applications from various engineering disciplines are emphasized and computer solutions stressed. Prerequisite: Permission of the Instructor.

ENGG 612. Finite Element Methods. 3 Credits.
Derivation of element equations using direct, variational, and residual methods; multidimensional problems in the steady state and transient domains; use of general purpose finite element computer programs; applications from a variety of engineering disciplines. Prerequisite: Permission of the Instructor.

ENGG 614. Engineering Mathematics. 3 Credits.
Mathematical formulation of problems of importance to engineering; solutions of ordinary and partial differential equations; mathematical series and orthogonal functions and their applications; matrix algebra; applications from a variety of engineering disciplines are emphasized. Prerequisite: Permission of the Instructor.
ENGG 620. Applications of Instrumentation and Data Acquisition. 3 Credits.
Operation, application, and selection of engineering instruments for measuring common engineering variables, e.g. position, velocity, temperatures, pH, force, pressure, strain, flow rate, light intensity, concentration, etc; sensors, data acquisition and processing. Output devices, including logic and actuator operation and selection. Computer-based data acquisition and automated analysis are considered.

ENGG 630. System Control. 3 Credits.
Formulation of process models; transfer functions; multivariable systems; linear control and feedback systems; stability; steady state optional control; adaptive control; applications from a variety of engineering disciplines. Prerequisite: Permission of the Instructor.

ENGG 632. Modern Engineering Computations. 3 Credits.
Applications of contemporary computer software to increase speed, improve comprehension, and enhance presentation; of results when analyzing, modeling and solving a wide variety of engineering problems in various branches of engineering and computer science. Prerequisite: Permission of the Instructor.

ENGG 640. Information Processing and Technology. 3 Credits.
Examination of the technological issues, including design of integrated engineering information systems and environments. Topics to be taken from: the computer as an organizational information system; computer-based information system; manufacturing information systems; the virtual office; databases and database systems; knowledge-based systems; technology and role of the internet in integrated engineering information systems; organizational system theory and methodologies.

ENGG 650. Engineering Economics. 3 Credits.
Techniques for estimating investment and operating expenses; profitability analysis including depreciation and taxes in cash flow; methods for comparing alternate investments; market estimation and location efforts; application from a variety of engineering disciplines.

ENGG 651. Principles in Public Health. 3 Credits.
This course will cover basic principles in public health with emphasis on topics for engineering professionals. Fundamental concepts in the core public health sciences of epidemiology and biostatistics, as well as public health biology and toxicology, will be presented. Application of these principles to issues of human exposure to environmental agents and the role of the engineering disciplines will be examined. Human health risk assessment and the implications on regulatory policy will be discussed. Permission of instructor is required.
ENGG 652. Project Management. 3 Credits.

Study of the content, planning, and control of an industrial project; comparison of functional management and project management, the role of the Engineering Manager, project organization structures, project planning, use of critical path methods and project control; emphasis on the project management concept and its applicability to a wide range of industrial projects; the case study method is used to examine a variety of specific management issues, e.g. staffing, controlling and directing the project, identifying and resolving critical issues, anticipating and solving team personnel problems, etc.; various managerial decision tools and project control methods, such as CPM and PERT are discussed.

ENGG 653. Statistical Decision Making. 3 Credits.

Methods dealing with the collection, tabulation, summarization, and presentation of data. Inferential statistics; reaching conclusions and making estimates about populations based upon sample information. Hypothesis testing is explored as a basis for decision-making. Design experiments to learn more about the natural world and how to model physical relationships. Engineering quality into a product.

ENGG 654. Quality Management for Engineers. 3 Credits.


ENGG 656. Engineering Optimization. 3 Credits.

Introduction to optimization problems; mathematical preliminaries; unconstrained nonlinear optimization; one-dimensional search methods; equality and inequality constrained nonlinear optimization; linear programming; engineering applications to cost minimization, optimum system design and operation.

ENGG 658. Legal Aspects of Engineering. 3 Credits.

Basic legal doctrines, professional-client relationship, design and practice problems. Fundamental concepts of contract law. Topics include American judicial system, contracts, quasicontracts, agency, licensing, client obligations, construction process, liability of engineers, copyrights, patents and trade secrets.

ENGG 660. Engineering Ethics. 3 Credits.

Ethical issues in engineering are examined such as whistle blowing, computer ethics, employer/employee relationship and responsibilities, use of technology and the environment, public safety, codes of ethics. Case studies are emphasized.
ENGG 670. Pollution Prevention. 3 Credits.

Regulations, advantages and disadvantages of pollution prevention: EPA'S pollution prevention hierarchy, including source reduction, recycling, control and ultimate disposal; Multimedia approaches and total systems analysis of pollution prevention options; applications to specific processes and industries from various engineering disciplines.

ENGG 672. Accident and Emergency Management. 3 Credits.

Engineering process safety, including emergency.

ENGG 674. Green Engineering Design. 3 Credits.

Multi-disciplinary considerations and techniques for greener engineering design; historical perspective of the industrial revolution and the impacts of industrialization; 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 water disposal methods; and, sustainable development and the role of engineers.

ENGG 676. Sustainable Material Selection. 3 Credits.

The first half of the class covers basic material selection issues such as material characteristics, and behavior for all types of engineering materials (metals, polymers, ceramics/glasses, and composites), along with how they fail and respond to environmental conditions (e.g. corrosion). In the second half of the class attention will be paid to material selection with particular emphasis being placed on ecological considerations such as recycling, reusability, carbon footprints, and pollution issues.

ENGG 680. Advanced Strength of Materials. 3 Credits.

Stresses in multidimensions; symmetrical and unsymmetrical bending; shear center; curved beams; beams on elastic foundation; beam columns; thin plates; torsion of noncircular sections; thin walled cylinders; general and symmetric bending of straight bars, curved beam and plates; applications from several engineering disciplines. Prerequisites: Undergraduate solid mechanics course.
ENGG 682. Applied Heat Transfer. 3 Credits.

Topics in process heat transfer including: steady state and transient conduction, free and forced convection, radiation and combined models, heat transfer with phase change; applications come from a variety of engineering disciplines and can include: design and rating of various heat exchangers, condensers and evaporators; heat pipes; solar collectors; electronic cooling, etc. Prerequisite: Undergraduate heat transfer course.

Environmental Engineering-Graduate Courses

ENVG 505. Surface Water Quality Modeling. 3 Credits.

Principles governing the transport and fate of contaminants in surface water systems. Topics include: water quality criteria and standards: pathogens: BOD and dissolved oxygen depletion; nutrient cycling; and eutrophication. Development and application of mass balance models wills be used through the course. Engineering controls to meet water quality objectives and case studies are presented. Computer solutions for some problems are required. Prerequisite: ENGS 204 or equivalent.

ENVG 506. Water and Wastewater Treatment Processes. 3 Credits.

Study of the fundamental principles used to treat both drinking water and wastewater. Drinking water treatment principles include Strokes 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. CEEN 303 or equivalent.

ENVG 507. Geohydrology. 3 Credits.

Basic principles of groundwater hydrology and subsurface contaminant transport. Construction and use of flow nets; pumping well and aquifer response under confirmed and unconfirmed 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. Prerequisite: ENG 303.

ENVG 509. Environmental Geochemistry. 3 Credits.

ENVG 510. Hazardous Waste Design. 3 Credits.
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, soil vapor extraction, adsorption, bioremediation of contained aquifers and soils, and incineration. Emerging treatment technologies will also be presented. Prerequisite: ENGS204 or equivalent.

ENVG 702. Air Quality Models. 3 Credits.
Concepts and development of air quality models; introduction to numerical methods used in air modeling, Eulerian and Lagrangian techniques; application of Gaussian Plume, line source and area source models as well as indoor air quality models. A project oriented course where students develop a two-dimensional air pollution model of New York City, and utilize plume dispersion and urban air shed models.

ENVG 703. Environmental Fate and Effects of Toxic Contaminants. 3 Credits.
Principles governing the transport, fate, and effect of toxic organic contaminants and metals in surface water systems. Topics include: physical-chemical characterization of toxic organic contaminants; phase behavior and chemical transformation kinetics; chemical speciation and transport; bioaccumulation in aquatic food webs; metal speciation and bioavailability; human and ecological risk assessment; environmental restoration. Mathematical solutions and computer models used throughout the course. Prerequisite: ENVG/L 505.

ENVG 704. Advanced Water Quality Modeling for Metals. 3 Credits.
Advanced water quality modeling for metals in surface waters and sediments. Topics include: metal speciation; metal binding to natural organic matter; metal binding in sediment; aquatic toxicity; human health effects; chemical speciation-transport modeling; critical loads; metal-sulfide oxidation kinetics; cycling of redox sensitive metals (e.g., As, Cr, Se); Hg cycling and bioaccumulation; acidification of surface waters. Computer modeling based on the Biotic Ligand Model (BLM) and the Tableau Input Coupled Kinetic Equilibrium Transport (TICKET) model will be used throughout the course. Prerequisites: ENVG 505 and 706.

ENVG 706. Water Chemistry. 3 Credits.
The environmentally important chemical processes that take place in natural marine waters, and in soils and sediments. The sources, reactions, transport, and fate of chemical substances in these environments. Extensive examples of the application of chemical principles to the solution of relevant environmental engineering problems are included. Prerequisite: ENGS 204 and two semesters of general chemistry.
ENVG 708. Environmental Biology. 3 Credits.
Fundamentals of biotechnology and its applications to environmental engineering. Principles of microbial genetics, microbial ecology and biochemistry and how they relate to biological treatment of water, air, wastewater and hazardous wastes. Biofilm process fundamentals and applications. Molecular methods and their use in the study and analysis of ideal and non-ideal biological systems. Specific applications to public health, bioremediation, biosolids reuse and industrial treatment. Prerequisite: ENVL 506.

ENVG 710. Environmental Organic Chemistry. 3 Credits.
The structure and nomenclature of relevant organic compounds. Kinetics, fate and transport of xenophobic chemicals in the environment. Important hydrolytic, photolytic, oxidative and reductive reactions. Use of quantitative structure activity relationships (QSARs) in predicting toxicity and related properties of various classes of environmentally active organic compounds. Prerequisites: ENGS204 and two semesters of General Chemistry.

ENVG 712. Advanced Geohydrology. 3 Credits.
Review of basic principles. Introduction to numerical groundwater modeling; application of Visual MODFLOW to flow and transport modeling. Pumping well and aquifer response under confined, unconfined, and semi-confined conditions. Hydraulic conductivity testing; borehole and surface geophysical methods for site characterization. Prerequisite: ENVG 507.

ENVG 718. Biological Treatment Wastewaters. 3 Credits.
Application of microbiology to treatment of organic wasters including toxic chemicals. Treatment models, aerobic, facultative and anaerobic processes, cell synthesis and respiration, oxygen and nutrient requirements. Biological nutrient removal, attached growth systems, bioremediation and process designs.

ENVG 721. Regulatory and Engineering Aspects of Water and Residuals Reuse. 3 Credits.
Fundamentals of wastewater reuse including: State and Federal water reclamation and reuse regulation; municipal, industrial and storm water reuse; public health aspects of reuse; and economics of reuse. Design and operation of specific reuse technologies including membrane systems, advanced oxidation systems, etc. Regulations and technologies addressing beneficial reuse of biosolids and drinking water residuals, including land application and soil conditioning, will also be covered. Finally, the role of water and residuals reuse in industrial, local and global sustainability will be addressed. Prerequisite: ENVL 506.
ENVG 722. Subsurface Bioremediation. 3 Credits.

Fundamentals of sub-surface processes, abiotic and biotic, which contribute to the bioremediation of common subsurface contaminants including petroleum hydrocarbons, chlorinated solvents, nitroaromatics, heavy metals and radionuclides. Areas of study will include multi-phase flow, convective transport, sorption/desorption, phase partitioning, as well as microbial ecology, biodegradation kinetics, biomass growth and degradative metabolisms. Specific examples of intrinsic and engineered bioremediation of aromatics and chlorinated solvents will be included. The course will utilize a textbook, web-based tutorial material and three interactive bioremediation spread-sheet based models. The course will meet only three times during the semester; all other correspondence will be carried out via email. Prerequisite: ENVG 506, ENVG 507.

ENVG 731. Special Topics. 1-3 Credit.

Guided study of approved advanced topics related to environmental engineering or science; credits to be specifically arranged.

ENVG 732. Thesis. 6 Credits.

A technical paper under faculty supervision based upon original study or research, and original design, or a thorough analysis of an existing or proposed system of either a scientific or engineering nature.

ENVG 736. Advanced Unit Operations. 3 Credits.

Advanced study of the processes used for water and wastewater treatment with an emphasis on design principles and process modeling. Processes covered include reactor design and analysis, carbon adsorption, ion exchange, chemical oxidation of inorganic and organic contaminants, primary and secondary disinfection, strategies for control of disinfection byproducts and membrane technologies. Prerequisite ENVG 506.

ENVG 739. Environmental Experimental Analysis. 3 Credits.

This course is an advanced laboratory covering principles of modern experimental and analytical techniques and their applications to problems in environmental engineering. Topics include the measurement of water quality parameters, determination of contaminant partition coefficients and kinetics of transformation reactions in the environment. Prerequisite: ENVG 705.

ENVG 740. Advanced Hydraulic Design. 3 Credits.

Introduction to advanced concepts in hydraulic design. Use of computer software to analyze and design complex stormwater, sanitary sewer and water distribution systems. Analysis of water quality issues in stormwater system design. Water quality analysis of water distribution systems. CEEN 307 or equivalent.
Mechanical Engineering-Graduate Courses

MECG 512. Energy Conversion. 3 Credits.
Overview of thermodynamic concepts, application of first and second laws of thermodynamics to improve efficiency of gas turbines and power generation systems, combustion of hydrocarbon fuels, reacting systems, conventional and innovative energy conversion applications such as solar, wind, wave, tidal, ocean thermal, and geothermal energy.

MECG 513. Introduction to Nuclear Power Plant systems. 3 Credits.
Study of current in-service nuclear plant design, including nuclear plant reactor, reactor auxiliaries, secondary steam plant, and electrical systems; review the design bases for major systems and components in current operating nuclear plants; evaluation of how the systems function in an integrated fashion. Case studies are used to explore historical engineering and operational issues. New vendor nuclear plant designs are explored and compared to current designs.

MECG 515. Energy Dynamics of Green Buildings I. 3 Credits.
The course emphasizes understanding the impact that various environmental systems have on the building design and operation process. Site and climate analysis will be the starting point for defining performance criteria of the built environment. Students will be introduced to analysis tools for interpreting weather data and the fundamentals of occupant comfort. Criteria used to define internal environmental conditions will be discussed as design goal to which all building elements must strive to achieve through systems integration. Three credits.

MECG 516. Turbo Machinery. 3 Credits.
Review of fundamentals of fluid mechanics, dimensional analysis in fluid machinery; classification and characteristics of fluid machinery (positive displacement, radial, mixed flow and axial); efficiencies; incompressible flow machines (pumps and hydraulic turbines); cavitation; compressible flow machines (compressors and gas turbines); choking and surge.

MECG 525. Analysis and Design Hvac Systems. 3 Credits.
Indoor air quality and human comfort, economy and environmental protection requirements. Heating and cooling loads. Introduction to equipment selection and system analysis.
MECG 528. Combustion Systems. 3 Credits.
Basic Cycles for spark ignition and compression ignition engines. Combustion chemistry, flame temperatures, fuels and heating values. Actual versus ideal cycles, equilibrium charts, knock and engine variables. Mechanics of spark ignition and compression ignition engines.

MECG 546. Manufacturing Engineering. 3 Credits.
Group projects emphasizing design for manufacturing, manufacturing system simulation, and prototype fabrication. Concurrent with projects are lectures on modern manufacturing technologies. Includes a two-hour laboratory.

MECG 548. Introduction to Robotics. 3 Credits.
The geometry and mathematical representation of rigid body motion, forward and inverse robot kinematics, robot dynamics, trajectory generation, position sensing and actuation, and the control of manipulators. Three credits.

MECG 605. Flight Aerodynamics. 3 Credits.
The operation of an aircraft as a function not only the wing but also the engine operating characteristics and overall aircraft parameters. This course develops the analysis needed to calculate flight envelop characteristics, take-off and landing parameters, engine/wing matching requirements, and basic conceptual aircraft design protocols. Three credits.

MECG 612. Alternative Energy Systems. 3 Credits.
Second Law of Thermodynamics; discussion of systems which are not limited by heat engine efficiencies. Sterling Engines. Thermoelectric systems; electrochemistry, batteries and fuel cells. Solar energy; solar thermal and photovoltaic energy systems. Lenz’s Law, magneto-hydrodynamics. Wind power, horizontal and vertical wind turbine designs. Geothermal energy systems. Three credits.

MECG 613. Nuclear Reactor Theory and Design. 3 Credits.
An in-depth study of reactor operation and design principles; fundamentals of radiation; radiation decay; binding energy; types of interactions; shielding; radioisotopes; fission cross section; fission in a reactor as a method of generating heat; controlling fission chains; basic reactor model design principles; reactor theory; heat transfer with regards to reactor coolant and reactor fuel; reactor design safety; and nuclear reactor control including important parameter measurements on sub-critical and critical reactors. Three credits.
MECG 615. Energy Dynamics Green Buildings II. 3 Credits.
In this course students will be engaged in the design of the building systems through a process that views systems as complete assemblies with design relationships to other systems (man made and natural/internal and external). The content of the course will emphasize the tectonic aspects of architecture; however, other aspects such as the technology and methods for maintaining comfort conditions and ecological balance within the buildings will be reviewed with an emphasis on high performance sustainable design, human comfort, social responsibility, ecology, and sustainability. Issues associated with LEED certification will be addressed; energy system analysis programs will be used to optimize a building performance. Three credits.

MECG 617. Solar Energy System Theory and Design. 3 Credits.
Study of solar energy systems with emphasis in solar heating and cooling of buildings; design of various types of solar collectors using different materials, working fluids, and geometries; energy storage systems for solar assisted heat pumps; use of solar energy in power generation. Three credits.

MECG 630. Control System Theory and Applications. 3 Credits.
System model formulation; transfer functions and block diagrams; linear control and feedback systems; root-locus method will be covered along with control hardware and schematic diagrams. Case studies and applications to various engineering systems will be used to introduce students to the principles of control system design. Three credits.

MECG 676. Sustainable Materials Selection. 3 Credits.
The first half of the class covers basic material selection issues such as material characteristics, and behavior for all types of engineering materials metals, polymers, ceramics/glasses, and composites), along with how they fail and respond to environmental conditions (e.g. corrosion). In the second half of the class attention will be paid to material selection with particular emphasis being placed on ecological considerations such as recycling, reusability, carbon footprints, and pollution issues. Three credits.

MECG 701. Viscous Flow Theory. 3 Credits.
Development of the Navier-Stokes equation; solutions for special cases. Dimensionless forms; low and high Reynolds number forms. Boundary layer theory (similarity solution); Application to flow over a flat plate, and flow in ducts. Introduction to potential theory.

MECG 702. Compressible Flow. 3 Credits.
Linearized sub- and supersonic flow past slender bodies. One- and two-dimensional and axisymmetric flows, including normal and oblique shocks. Similarity laws. Method of characteristics.
MECG 704. Computational Fluid Mechanics. 3 Credits.
Study of numerical methods in fluid mechanics including: finite differencing, numerical errors and stability, nonlinear convection terms, boundary conditions, and turbulence.

MECG 707. Conduction Heat Transfer. 3 Credits.
Development of basic equations of heat conduction; analytical and numerical solutions of transient and steady state temperature distributions in solids; applications involving heat generation and varying physical properties. Computer projects.

MECG 708. Convection Heat Transfer. 3 Credits.
Continuity, momentum, and energy equations for engineering fluids; exact and approximate solutions for laminar and turbulent flows; free and forced convection, boiling and condensation; selected applications.

MECG 709. Radiation Heat Transfer. 3 Credits.
Black body and non-black surface radiation; radiative properties of real materials; configuration factors; multi-face radiation exchange in enclosures; radiative transfer in participating and radiative properties of gases; application to problems involving convection and radiation.

MECG 714. Computer Aided Engineering. 3 Credits.
Introduction to CAD, solid modeling, analysis and optimization. Introduction to finite element packages, practical integration of CAD, system assembly and dynamic simulation.

MECG 720. Robotics and Automation. 3 Credits.
Introduction to robotics and automation; flow-line production; numerical control and CAD/CAM; group technology and flexible manufacturing systems; robotic industrial application; robot decision making; programmable robotic automation.

MECG 734. Operation Research. 3 Credits.
Presentation of the analysis associated with managing manufacturing operations. Topics covered will be decision-making, forecasting, materials requirement planning, queuing, project management, and aggregate planning.

MECG 735. Theory of Vibration. 3 Credits.
Steady state and transient response of lumped and continuous mechanical systems. Application to rods, beams, plates and shells.
MECG 736. Design Machine Elements. 3 Credits.

Strain energy method for analyzing statistically indeterminate machine members; theories of failure; fatigue; optimum design of machine elements; stress waves and impact loading, critical speed. Finite element modeling of various machine members.

MECG 738. Advanced Dynamics. 3 Credits.

Introduction to kinematics; formulation of equations of motion for a particle, system of particles and rigid bodies. Holonomic, conservative and non-conservative systems. Work-energy principles and Lagrangian methods. Introduction to vibration theory.

MECG 741. Special Topics: in Mechanical Engineering. 3 Credits.

Special topics in mechanical engineering of current interest to graduate students; subject matter will be announced in advance of particular semester offering.

MECG 742. Advanced Study: Mechanical Engineering. 3 Credits.

Individual study of a selected topic in mechanical engineering under the supervision of a faculty member. Prerequisite: Advisor’s approval of topic.

MECG 746. Research Project in Mechanical Engineering. 3-6 Credits.

Research project under the supervision of a faculty member. A project proposal, approved by the faculty advisor and the graduate program director, must be submitted. A final written report and oral presentation are required. May be extended to thesis with faculty advisor’s recommendation and approval of the graduate program director.

MECG 748. Thesis in Mechanical Engineering. 6 Credits.

Original investigation or design in field of mechanical engineering; topic is to be chosen by student with approval of faculty advisor and department chair; written report and oral presentation required. Prerequisite: Advisor’s approval of topic.
School of Education

Mission

The School of Education is committed to the mission of Manhattan College to provide a contemporary, person-centered education that embodies the LaSallian traditions of scholarship, excellence in teaching, respect for individual dignity, and commitment to social justice. The additional goal is to prepare self-directed, reflective, scholarly professionals dedicated to the highest standards for themselves and those they serve. Professionals are prepared in the fields of Counseling, School Leadership, and Childhood/ Special Education (Grades 1-6).

Application Procedures

Application forms for admission to all programs in the School of Education may be obtained from the Graduate Education Office, from the School of Education web site (http://www.manhattan.edu/academics/graduate/index.shtml), or from the Office of Admissions. The completed form accompanied by the application fee (non-refundable) must be submitted to the Office of Admissions. Applicants for admission are responsible for having official transcripts of all undergraduate and graduate courses mailed directly to the Office of Admissions, paying the application fee, submitting letters of recommendation, and if required, standardized test scores.

Official transcripts (not student copies) of all undergraduate records must be sent to the Office of Admissions by the institutions issuing them. Applicants who file an application before the baccalaureate degree has been conferred may be accepted pending the successful completion of their undergraduate work. A final transcript must be received in the Office of Admissions before they register for graduate courses.

Graduates of Manhattan College should write to the Office of the Registrar requesting that an official transcript be sent to the Office of Admissions.

An application is not complete until all the necessary materials and application fee have been received by the Office of Admissions. Incomplete applications cannot be processed. Students who file an application and whose official transcripts arrive after the deadline date cannot be assured that their application will be processed in time for the semester for which they are applying.

The filing should be completed before April 1st for summer session application; July 10th for fall session applicants, and December 7th for spring session applicants.

The Director for the program for which a person is applying reviews the application and supportive documents and forwards a recommendation to the Dean of Education. This recommendation is sent to Office of Admissions for processing. The Office of Admissions then informs the applicant of the decision. Those who have been accepted will receive the instructions for registration at the beginning of the session for which they have been accepted.

The documents submitted in support of application cannot be returned to the applicant and can not be duplicated for any purpose. All documents received are part of the records of the College.
Admission

Applicants for admission into any graduate program in the School of Education must hold a baccalaureate degree from an accredited college or institution acceptable to Manhattan College. In addition, they must meet the specific requirements as stated in the introduction to the respective programs. Normally, an undergraduate grade point average of 3.00 on a 4.00 scale is required, although other factors can be considered in the decision for admission.

Admission into graduate education programs will be granted as a matriculated student, one seeking to fulfill the requirements of a degree. A student may be granted permission to take an approved graduate course on a non-matriculated basis or, in special cases, as an auditor. A non-matriculated student is one earning graduate credit for a specific course but not necessarily working for a degree. For example, the student may be interested in earning a Graduate Certificate or continuing education units or completing credits for other professional reasons. For both non-matriculated and auditing students, tuition and fees are the same as for matriculated students. A non-matriculated fee also applies.

A student who lacks undergraduate prerequisites for a specific program may be asked to complete certain undergraduate courses as a non-matriculated student. Students requesting to take graduate courses as a non-matriculated student must have the necessary prerequisites for those courses. Students may not register for more than 12 credits as a non-matriculated student without the permission of the Dean of the School of Education.

Students who take graduate courses at Manhattan College on a non-matriculated basis and apply thereafter for admission to a graduate program as a matriculated student will be informed at the time of acceptance which courses may be applied to that degree program.

Students who have earned a master’s degree or who are pursuing a master’s degree in one education program from Manhattan College and desire to seek admission into another program must file a new application with the Office of Admissions.

All documents of applicants who have been accepted and who for extenuating circumstances cannot register for courses during the session for which they were admitted will be kept on file for two years. The documents will be destroyed if the applicant does not register for courses within the two year period.

Visiting Students

Students who are matriculated in a graduate program at another institution and who wish to take a course (or courses) at Manhattan College may do so as non-matriculated students for individual courses for which they have prerequisites. For non-matriculated students, tuition and fees are the same as for matriculated students. A non-matriculation fee also applies.

Applicants from Foreign Countries

The College accepts students from foreign countries for its full-time graduate programs in the School of Education. In general, the College cannot accept students into its part-
time graduate programs. The student who is accepted and receives a student visa must be enrolled in each term of the academic year for 9 credits (three 3-credit courses). Such students must complete the program within 18 months.

Applicants from foreign countries should submit their admission application, official transcripts, and the admission fee four months before the beginning of the session they wish to enter. In addition, they must submit a notarized statement that they have sufficient funds to finance their education and their maintenance. Many of the sources of financial assistance are limited to the residents of the United States.

All students applying from foreign countries must take the TOEFL (Test of English as a Foreign Language) and have the test results sent to the Office of Admissions. A minimum TOEFL score of 213 (550 for paper exam) will satisfy Manhattan College admission requirements and criteria for issuance of the I-20 form.

A student from another country who is informed of acceptance must deposit $300 which will be credited toward tuition. This fee is non-refundable if the student does not register but will be credited to his/her account for two years. When the $300 is received, the student will be sent an I-20 form which must be presented to the United States authority to arrange for an F1 student visa.

Objectives

The Graduate School of Education is committed to the preparation of Human Service professionals through courses leading to the master degree and/or advanced certificates:

- The Master of Arts program in Counseling is directed toward work in counseling with a view to preparing the candidate for the role of counselor in schools.
- The Master of Science in Mental Health Counseling program is directed toward work in agency, hospital or other service related placements.
- The Teacher Education Program (M.S. in Ed.) is directed toward the professional preparation of teachers of disabled individuals, including but not limited to the mentally retarded, the emotionally disturbed, the physically disabled, the neurologically impaired, the multiply disabled and those with specific learning disabilities in grades 1-6.
- The Dual Program prepares teachers to work with children in grades 1-6 in the general as well as Special Education settings.
- The School Leadership Program (M.S. in Ed.) is directed toward the professional preparation of school building leaders, administrators and supervisors, assistant principals, department chairs, coordinators, unit heads, and the like.
- Post Masters (Professional Diplomas) are offered in counseling, special education, and school leadership.
- Certificates in Bilingual Pupil Personnel Services, College Advising Counseling, and Teaching and Learning with Technology are also offered.
General Admission Requirements

In addition to the special requirements that may be listed for various programs, candidates must:

• Earn a baccalaureate degree from an accredited college or institution acceptable to Manhattan College and normally meet or exceed an undergraduate grade point average of 3.0 on a 4.0 scale. Other factors will be considered for admission, such as years of professional experience, a high average in major field, scores on required standardized tests, or academic development beyond the baccalaureate degree. Candidates who have not taken the prerequisite coursework may be required to take graduate courses that are not part of the degree program.

• Meet any additional requirements for a specific program.

• Submit the following: application form, transcript, one page handwritten Narrative Statement of Interest in the specific program, resume and letter of reference, preferably from a professional colleague or professor. In the case of Counseling programs, two letters of reference are required.

• Schedule an interview with the director of the specific program with the exception of Counseling where an interview is not required.

• Applicants interested in a graduate assistantship should request information about graduate assistantship by contacting the Education office or in the case of Counseling, the Director.

• Applications for admission will be reviewed by the Program Director and the Dean of the School of Education.

Matriculation Status

Admission will be granted as a matriculated student, one seeking to fulfill the requirements for a master degree or professional diploma or as a non-matriculated student, one earning graduate credit for specific courses but not for the degree. Normally participants are not allowed to continue in a non-matriculated status beyond 12 credits. Non-matriculants are charged a fee.

Seniors in the undergraduate Education program at Manhattan College who have completed their undergraduate requirements may, with the written consent of the director of their programs and the Dean of Education, be admitted to appropriate graduate level courses except in Counseling.

Transfer Credit

The Graduate Education Programs at Manhattan College are designed with a developmental emphasis. Assessment is ongoing and performance based. Therefore, a matriculated student is expected to earn all the credits for the program at the College. Transfer of credits will only be considered for compelling reasons. In such cases, students should submit an Off Campus Course Approval Form to their Program Director who will
forward it with a recommendation to the Dean. Participants must obtain written approval prior to enrolling in the course.

Degree Requirements

To obtain a master degree from the School of Education students must:

- File the Intent to Graduate form with the Program Director by the due date during the semester before graduation.
- File the Application to Graduate form with the Registrar in the final semester of course work.
- Give evidence of having met program standards through periodic performance reviews.
- Undertake and complete a research based project/paper under the direction of a faculty member. The topic must be related to the participant’s program of study and approved by a faculty advisor as part of Methods of Education and Psychological Research. The major paper must be completed in (for Special Ed and School Leadership) or for Counseling, submitted, and a final draft tentatively approved before registering for the seminar or the following courses: , , . Final approval including sign-off by a faculty advisor is required in order to graduate. Candidates must carefully follow the format of the American Psychological Association, and must submit completed papers according to the timeline for graduation: January 15 for May, June 15 for September, and October 15 for February. The approved major paper must be placed on file in the Graduate Education office.
- Earn the required number of credits for the program, successfully complete each course and demonstrate mastery of the professional knowledge, dispositions and skills for the specific degree and/or certification with a cumulative index of 3.0 or better.
- Undertake a practicum/internship if required. These experiences, including the seminars and reports related to them, are designed to integrate the theory, research and practice developed throughout the program.
- Pay and clear all outstanding financial accounts including library and graduation fees owed the College.

New York State Certification

School Counseling, Special Education, School Building Leadership, Administration and Supervision Certifications

The Graduate Education Programs have been approved by the New York State Department of Education to offer course work leading to Certification as a Special Education or dual Childhood/Special Education Teacher, School Building Leader, or School Counselor. The graduate program in Mental Health Counseling is approved by the New York State Office of Professions as license qualifying

To be eligible for certification or license qualifying, the candidate must:
School of Education

1. Complete all course work with a cumulative index of 3.0.

2. Complete the New York State approved program in the certification or license qualifying area.

3. Successfully complete, if required, student teaching, practicum or internships as evidenced by observations from the field and college supervisors.

4. Successfully complete the appropriate sections of the New York State Teachers Examination, LAST, ATS-W & CST where applicable.

5. Complete the application for certification form (which may be obtained from the Dean's Office or online) or the required form for a "limited permit" at the end of the Mental Health Counseling program and payment of required fees.

6. Be recommended by the Dean of the School of Education, the state certifying officer. Candidates possessing provisional New York State certification in Childhood Special Education or School Building Leadership may merit permanent/professional certification upon completing the degree program provided they have satisfied the New York State requirements regarding length of service. Students in Special Education must pass the appropriate New York State Education Department tests, LAST, ATS-W, ATS-P and CST if required.

7. Complete the training in Child Abuse Recognition and Reporting and SAVE legislation required for new and renewed certification. Such training is provided in all degree programs through specified courses or online through the State for Counseling. Candidates for certification must take the necessary course at the college or from a state approved provider to fulfill this New York State mandated requirement for certification.

Changes in certification requirements issued by New York State Education Department will take precedence over and replace those presented in this catalog. Those seeking New York State certification are responsible for knowing and meeting all State requirements for their specific programs.

Job Opportunities for Special Education Teachers, School Administrators and Counselors

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.
Courses

EDUG 600. Orientation to School Building Leadership. 0-3 Credits.
This 0" credit course is required for all those admitted to the School Building Leadership (SBL) program and should be taken within the first six credits. This orientation addresses Course Related Leadership Activities (CRLA).

EDUG 700. Lasallian Educational Practice and Philosophy. 3 Credits.
An examination of the life and educational contributions of John Baptist de La Salle. The course will examine The Catholic School" and specifically "The Lasallian School." Pedagogy.

EDUG 704. Introduction to Group Dynamics and Human Relations. 3 Credits.
Experiential study of factors that provide a climate of freedom for personal expression; exploration of feelings; interpersonal communication through group analysis of current community problems; emphasis on the atmosphere conducive to interaction among group members; dynamics for innovative and constructive behavior; theory and practice in treatment and elimination of conflict, especially in intergroup-intercultural problems.

EDUG 705. Orientation to Alcohol and Substance Abuse Counseling. 3 Credits.
An introduction to alcohol and chemical dependency counseling with an emphasis on major aspects of the field such as the disease concept, the importance of self-help groups in the recovery process, ethical principles that impact on alcohol and substance abuse counseling, Federal and State confidentiality laws, and client HIV status as it pertains to confidentiality.

EDUG 706. Alcohol and Substance Abuse: Evaluation, Treatment Planning and Case Management. 3 Credits.
An in-dept study of the essential components of alcohol and drug assessments, their importance in the treatment planning process, the development and implementation of behaviorally-oriented treatment plans and the coordination of services for clients through case management activities. The variety of treatment opportunities for clients based on their individual needs will be studied. Prerequisite: 705 or permission of Program Director.
EDUG 708. Physical and Psychopharmacological Aspects of Alcohol and Substance Abuse. 3 Credits.

An examination of how alcohol and other substances affect physical health, including the brain and the individual’s cognitive functioning. Specific emphasis will be placed on the pharmacological effects of alcohol and other substances of abuse. Specific illness commonly found among this population such as AIDS, tuberculosis and other communicable diseases will be discussed.

EDUG 709. Alcohol and Substance Abuse Counseling Family Issues and Treatment Approaches. 3 Credits.

A comprehensive review of the literature pertaining to the effects of alcoholism and other substance abuse on the family system. Individual and group treatment approaches employed within the family system, including co-dependency groups, Al-Anon, Alateen, and other services for children of alcoholics and substance abusers will be discussed. Prerequisites: 721, 725, or permission of the Program Director.

EDUG 710. Current Issues. 3 Credits.

An examination of how certain influences affect our understanding and treatment of alcohol and substance abuse.

EDUG 711. Multiple Disorders. 3 Credits.

A comprehensive examination of psychiatric disorders and the nomenclature of DSM-IV. Issues pertaining to the ways that various mental disorders complicate the evaluation and treatment of alcohol and substance abuse will be studied. Specific treatment interventions with certain groups of dually-diagnosed individuals will be provided. Specific attention will be paid to the treatment of polysubstance abusers.

EDUG 712. Counseling the Single Parent Family. 3 Credits.

Examination of the needs of children and parents in single parent families; distinctions made among single parent families’ problems brought about by divorce, separation, death, annulment and out-of-wedlock children.
EDUG 713. Methods of Educational and Psychological Research. 3 Credits.
Critical evaluation of educational and psychological research. Design and implementation of a research project utilizing the scientific method and statistical interference. Examination of techniques and format of research writing. Students complete three sections of the required major paper. Topic must be related to the student’s specific program and approved by the course professor. If all five sections of the required paper are not completed in 713, candidate must register for EDUG 888 Independent Study in Research, a one credit course, until completion and approval of the paper. Special Ed and School Leadership participants who do not complete course requirements while registered for 713 will enroll in the one credit course, EDUG 888 until course requirements are completed. EDUG 888 does not count toward graduation.

EDUG 714. Psychology of Career Counseling. 3 Credits.
Techniques of counseling different populations in a variety of settings. The course will address the role of work, job seeking techniques, the use of assessments, value clarification methods, and design of programs.

EDUG 715. Marriage and Family Counseling. 3 Credits.
Examination and application of the theory, practice and utilization of marriage and family counseling techniques.

EDUG 717. Stress Reduction Techniques. 3 Credits.
Study of the causes and characteristics of stress. Examination of different approaches and techniques for stress management that can be employed by the counselor.

EDUG 718. Technology, the School Counselor and College Advisor. 3 Credits.
This course gives students the opportunity to learn important technologies related to school counseling including an examination of best practices in use of Naviance; a second component of the course will focus on critical examination of college choice. Examination of software for programming, record keeping, testing, reference, referral, and networking for internal and external communication will be included.

EDUG 721. Introduction to Counseling Practices and Theories. 3 Credits.
The student will be introduced to the field of counseling by examining the major theories of counseling. In comparing and contrasting these theories, it will become clear what makes each approach unique and what all of these approaches have in common. Through this process, the student will begin to develop a personal theoretical orientation to counseling. The course will also consider personal qualities needed to be an effective professional counselor and common ethical issues that arise in the practice of counseling.
EDUG 722. Techniques in Counseling the Individual. 3 Credits.

Techniques of counseling the individual client will be studied and practiced. The course will examine the full process of counseling from initiation through termination. The student will learn how to establish a rapport with the client and how to work with difficult clients. The student will develop the skills to help the client explore problems, gain insight to those problems, and convert that insight into action.

EDUG 723. Life Span Development: Child, Adolescent, and Adult. 3 Credits.

Comprehensive review of major theories of human development from pre-natal period through senescence. Critical tasks and aspects of growth for each period will be explored. Particular emphasis will be placed on cognitive and psychosocial development and how children, adolescents, and adults are affected differentially by various learning and emotional disabilities. Focus will also center on the link between research and practice of counseling and special education including multicultural research, satisfies the requirement for S.A.V. E. and child abuse.

EDUG 724. Career Development. 3 Credits.

Practical application of major career development theories related to the world of work. Topics include: career assessment tools, information resources and the decision-making process. Trends, exploration of classification systems and, program development for counseling in the schools.

EDUG 725. Practicum in Groups. 3 Credits.

Discussion, evaluation, and demonstration of types of group counseling techniques; analysis of group dynamics; group counseling as it applies to educational, interpersonal and emotional problems, including alcohol, and substance abuse problems. The use of 12-Step self-help groups in recovery.

EDUG 726. Foundations of Mental Health Counseling. 3 Credits.

This class will provide students with an introduction to the roles, functions, and professional identity of mental health counselors in a variety of clinical settings. Students will develop a basic working knowledge of biopsychosocial mental health assessment and diagnosis. Students will develop a basic working knowledge of the principles of current diagnostic tools. Students will develop a basic knowledge of commonly prescribed psychopharmacological medications. In addition, the course will focus on a survey of community agencies, organizations and resources.
EDUG 727. Organization and Administration of the Guidance Program. 3 Credits.

Principles and problems in the organization, administration and evaluation of guidance programs at all levels; analysis of the role, responsibilities and duties of administrators, counselors, school psychologists, and teachers; computer applications for the guidance program for student support services including those with disabilities and who are English language learners. Field experience. Satisfies the requirement for S.A.V.E. legislation.

EDUG 728. Alcohol and Substance Abuse Counseling-Internship and Professional Development Seminar. 3 Credits.

Placements will be required within a licensed alcohol or substance abuse treatment agency, either inpatient or outpatient for a minimum of 150 hours. The internship experience will include the evaluation of clients, participation in counseling groups and individual counseling sessions with clients at the chosen treatment setting. A review of treatment sessions will be conducted with the student by the internship supervisor. As part of the internship experience, topics pertaining to the counselor/client professional relationship, transference/counter-transference issues, role boundaries and the use of clinical supervision as an ongoing aspect of practice will be the major focus of the internship experience. Minimum of 150 hours in the field. Prerequisite: Matriculation, 27 credits and permission of the Program Director and Director of Graduate Education.

EDUG 729. Professional Writing. 0-3 Credits.

This course is designed to enable the student to gain experience in professional writing and refine their writing skills. The emphasis will be on developing the organization and synthesis abilities required for more advanced writing demands in counseling, special education, or Leadership, including psychological reports, exposure to grant writing and program evaluations. While the course will also address issues related to grammar, and the APA style manual, it will emphasize improvement in writing with clarity and professionalism.

EDUG 730. Curriculum, Strategies, and Technology for the At Risk and Disabled. 3 Credits.

A practicum to improve school success of At Risk students and disabled students within the inclusionary setting. Review of NYS Content and Performance Standards; emphasis on teaching strategies; differentiated instruction; modification of curriculum materials; application of instructional technology; a curriculum based project is required. Permission of the Director of Special Education required.

EDUG 731. Counseling the At Risk, Disabled Student and Family. 3 Credits.

Overview of trends and legal rights of the disabled; implication for counseling with regard to the special vocational, educational, social and emotional needs of the disabled; survey of programs, agencies, and services for the disabled.
EDUG 732. Practicum in Counseling. 3 Credits.

Advanced counseling practice with clients under the supervision of the faculty. Integrated seminar with case conferences designed to enable students to develop skills in case conceptualization, consultation, individual and group counseling. Minimum of 100 hours of experience required. Satisfies the requirement for S.A.V.E. and Child Abuse recognition and reporting. Prerequisites: 12 credits and permission of Advisor.

EDUG 733. Approaches to Multicultural Education for the At Risk and Disabled Student. 3 Credits.

Introduction to multicultural education, cultural diversity, and equity issues through examination of race, ethnicity, social class, gender, disabilities and sexual orientation and their impact on curriculum and classroom instruction. Best practices and multicultural materials explored.

EDUG 735. Educational Leadership, Decision-Making, and Change. 3 Credits.

Leadership styles and decision-making models and their implications for the role of school leaders and supervisors as change agents and visionary leaders; exploration of what it means and what it takes to be a school leader; organizational patterns (line and staff) and group dynamics (formal and informal); the school as a social (power) system; use of case studies, simulation and role play. Course related leadership activities required.

EDUG 736. Issues in Educational Administration and Curriculum. 3 Credits.

Analysis/discussion, lecture, collaborative learning, intensive study, field experience related to issues for developing or enhancing administrative and curricular leadership for the school administrator, assistant principal, and department chair. Participants present evidence of knowledge, skills and dispositions for effective leadership in diverse educational settings. Course projects that promote collaboration, communication, and planning with parents, students, staff, and community leaders may include action research, strategic planning, change processes, design for staff development, computer application and/or multimedia presentations. Program portfolio and publication or multimedia presentation required. Satisfies the requirement for Child Abuse Recognition and Reporting and S.A.V.E. legislation. Course related leadership activities required.

EDUG 737. Staff Development. 3 Credits.

Concepts, theories, principles of adult learning for application to school based professional development; design and evaluation of new and existing staff development programs; use of staff development programs for team building, succession planning and collaboration; emphasis on school wide technological integration for effective standards based teaching and learning that helps students meet state standards. Developing and enhancing visionary instructional leadership by infusing instructional technology. Designed for education administrators, staff developers, counselors, general and special education teachers and professionals from other fields. Course related leadership activities required.
EDUG 738. Evaluating School Effectiveness. 3 Credits.

Models, current practices, strategies, and a variety of data sources for determining school, personnel and program effectiveness. Involving constituencies and staff in assessing school effectiveness and accountability for helping students meet state standards; examination of self-study and accrediting agency school evaluation processes; authentic, integrated assessment including portfolio assessment, understanding and using standardized test result to improve student learning. Course related leadership activities required.

EDUG 739. Administrative and Curricular Concerns of Private Schools. 3 Credits.

Analysis/discussion, lecture, collaborative learning, intensive study, field experience related to issues for developing or enhancing administrative and curricular leadership of the private school administrator, assistant principal, and department chair. Participants present evidence of knowledge, skills and dispositions for effective leadership in urban and suburban settings. Course projects that promote collaboration, communication, and planning with parents, students, staff, and community leaders may include action research, strategic planning, change processes, design for staff development, computer application and/or authoring professional papers. Program portfolio and publication or multimedia presentation required. Satisfies the requirement for Child Abuse Recognition and Reporting and S.A.V.E. legislation.

EDUG 740. School Law for Administrators. 3 Credits.

Legal issues concerned with the rights of students, parents, and professional personnel; negligence, equal opportunity, public and private schools court cases analyzed. Exploration of ethical behavior; application of statutes and regulations as required by law and implementation of school policies. Satisfies the requirement for Child Abuse Recognition and Reporting and S.A.V.E. legislation.

EDUG 741. School Administration and Supervision. 3 Credits.

Theory and practice of school administration and supervision; organizational patterns of the American elementary, middle and secondary schools; effective practices related to staff, instructional programs, pupil personnel services, discipline, evaluation of student progress, utilization of school plant, public relations; career guidance. Participants present evidence of knowledge, skills and dispositions for effective leadership in diverse educational settings. Intensive study of planning and design for staff development, school management, supervision of elementary, middle, secondary schools. Course projects related to safe, healthy supportive environments, budget and finance may include action research, strategic planning, change design, computer application and/or authoring professional papers. Satisfies the requirement for Child Abuse Recognition and Reporting and S.A.V.E. legislation. Course related leadership activites required.
EDUG 743. Personnel Practices. 3 Credits.
Theory and practice for administrators, department chairs, supervisory personnel regarding the recruitment, selection, assignment, and orientation of personnel; and the impact of collective negotiations.

EDUG 744. Contemporary Management Functions in the School. 3 Credits.
Management techniques providing administrative leadership in schools in planning, programming, budgeting; utilizing facilities management and materials; scheduling; financial management; legal issues related to contract, negligence, state law, commissioner’s regulations, safe environment. Satisfies the requirement for S.A.V.E. legislation. Course related leadership activities required.

EDUG 745. Curriculum Development and Adaptation. 3 Credits.
Principles, trends, and techniques of curriculum planning for early childhood through secondary schools; adaptation of curriculum to differentiate instruction and meet special needs including those of English language; the role of the teacher, supervisor and principal in meeting state curriculum standards and adapting curriculum for effective instructional delivery; study of curriculum issues related to instructional delivery and instructional leadership including technological enhancements. Emphasis on standards based teaching and learning that assists students to meet state standards, including those with special needs, and English language learners. Course related leadership activities are required.

EDUG 746. Administration and Supervision of Early Childhood Programs. 3 Credits.
Theory and practice of the administration and supervision of early childhood programs; review of legislation and requirements; discussion of developmentally appropriate practice; effective practices related to the selection and supervision of personnel; training and supervision of paraprofessional personnel; and policies, records, reports, instructional methods, materials and programs. Includes Child Abuse and Reporting.

EDUG 747. Supervision for the Improvement of Instruction. 3 Credits.
Role of principal, supervisor, unit head, department chair in enhancing the learning process; review, analysis and critique of existing models of instruction and supervision; techniques for providing instructional leadership through laboratory process, simulation. Planning with college personnel to provide experiences for new teachers to enhance student learning. Course related leadership experience required.
EDUG 748. Internship/Seminar I in School Building Leadership. 3 Credits.

This seminar integrates all previous learning experiences of the school leader, uses a problem solving approach to issues affecting administrators in elementary and secondary schools in urban or suburban areas. Prerequisites: 18 applicable credits taken at Manhattan College and appropriate G.P.A. in program including research if required; 100 hours of course related field experiences in leadership and permission of Program Director.

EDUG 749. Computer Applications for School Administrators. 3 Credits.

The application of basic computer functions to administrative tasks of planning, budgeting and communication; issues in computer managed and computer assisted instruction; computer hardware and software for school administration and management.

EDUG 750. Principles and Practices of Reading for the At Risk and Disabled. 3 Credits.

Psychological principles of learning underlying reading instruction for diverse students (disabled and gifted); methods of instruction and classroom organization for general and special education students; materials, testing procedures, differentiated instructional strategies and computer applications in reading instruction.

EDUG 753. Teaching Reading in the Content Areas for the At Risk and Disabled (Grades K-8). 3 Credits.


EDUG 754. Literature for the At Risk and Disabled (Grades K-8). 3 Credits.

Examination of literature. Inter relationship of dramatization, story telling, speaking, reading and writing explored for grades K-8. Study of authors and illustrators. Focus on Common Core Standards for Literacy differentiated instruction and strategies for integrating literature into curriculum areas such as Social Studies, Science and Math for the At Risk and disabled student.
EDUG 756. Organization, Administration and Supervision of Reading Programs. 3 Credits.

Organizational and supervisory practices for all levels of reading instruction and literacy. Examination of: procedures for conducting a needs assessment of the school reading program; supervision of reading teachers; organization and implementation of a staff development program; development of funded programs; evaluation of reading instructional materials; training and supervision of paraprofessionals and other auxiliary personnel; computer applications in reading.

EDUG 757. Organization, Administration and Supervision of Math, Science, and Technology Programs. 3 Credits.

Theory and practice of administration and supervision of Mathematics and Science instruction in elementary and secondary schools emphasizing hands-on, multisensory, learning experiences that integrate technology for students; developmentally appropriate practice related to mathematics and science learning, especially in young children and those with special needs and English language learners; effective practices related to the selection, training, and supervision of personnel; integration of lifelong learning and use of current developments in Mathematics and Science related to careers, economy, and environment; state and national curriculum standards for elementary, middle, and secondary schools.

EDUG 760. Mentoring. 3 Credits.

Theories, principles, concepts and practice related to direction and supervision of student teachers, new and experienced professionals for mentors and principals; principles of adult learning; collaboration and team planning for a productive educational environment; use of technology for monitoring and assessing student progress; application of diverse instructional strategies; interdisciplinary teaching; succession planning. Collaboration of elementary, middle/secondary school and college faculty for effective teaching and learning. Use of technology for meeting learning standards. Course related leadership experience required.

EDUG 761. Technology Utilization for Interactive Learning for the At Risk and Disabled. 3 Credits.

Examination of the use of instructional technology in the delivery of standards-based instruction in the general and special education classroom. Exploration of assistive technology. Emphasis on: internet usage in the development of thematic instructional units; interactive Smartboard lesson plans, e-portfolios, presentation graphics, PowerPoint and web page development. Opportunities for hands-on experience with instructional software in the computer lab.
EDUG 766. Literacy Instruction for the At Risk and Disabled Student (Grades K-8). 3 Credits.

Study of the physiological, psychological, and emotional development of exceptional students in relation to listening, speaking, reading and writing achievement; Common Core Standards for Literacy; techniques of diagnostic evaluation; differentiated instruction; modifications of curriculum and methods of teaching reading and communication skills to students – bilingual, disabled, as well as gifted.

EDUG 768. Integrated Curriculum: Math, Science and Technology I for the At Risk and Disabled Student (Grades K-8). 3 Credits.

Examination of Science, Math and Technology curriculum based upon the national Common Core Standards for Math and frameworks grades K-8. Focus on constructivism and inquiry based problem solving. Review of N.Y.S. assessments, alternative assessments and curriculum adaptations for the disabled. Overview of current research in the field. Focus on, methods, materials, questioning techniques and best practices based upon the inquiry approach. Opportunities for hands on experience with materials and software and use of cooperative learning strategies to explore concepts.

EDUG 771. Biology Science: Elementary At Risk I. 3 Credits.

Diagnosis and remediation of reading, language and writing disabilities in a clinical setting for disabled students; training in alternative reading strategies and techniques; lesson planning and evaluation of progress with recommendations for instruction. Prerequisites: EDUG 750, 766 or permission of the Director of Special Education.

EDUG 773. Communication Skills for the Learning Disabled. 3 Credits.

Identification, diagnosis and etiology of specific learning disabilities; legislative trends; services; overview of methods employed in the remediation of communication problems; emphasis on differentiated instructional practices that can be used in the special education or inclusive setting.

EDUG 775. Mathematics Instruction for the At Risk and Disabled (Grades K-8). 3 Credits.

Review of the Common Core Standards for Math and curriculum grades K-8 and current research. Emphasis on problem solving skills and curriculum integration; methods, materials and instructional technology appropriate for the At Risk and disabled student. Opportunity for hands-on experience, use of cooperative learning strategies and technology applications to explore concepts.
EDUG 778. Nature and Needs of the Exceptional Individual. 3 Credits.

Overview of the historical social and legal foundations of Special Education. Survey of the nature and needs of the mentally retarded, emotionally disturbed, physically disabled, deaf, blind, and learning disabled and gifted individuals; assistive technology. Introduction to agencies, programs, facilities and employment opportunities which support the disabled individual and family. Minimum of 25 hours of observation/field work in schools serving the disabled and their families. Satisfies the requirement for Autism.

EDUG 779. Independent Study in Instructional Technology for the Teacher of the At Risk and Disabled (K-8). 3 Credits.

Designed to allow the student with background and experience with instructional technology to pursue an area of interest. An overview and outline of the proposed project is required prior to registration. Permission of the Director of Special Education.

EDUG 780. Psychopathology. 3 Credits.

Major syndromes of childhood, adolescence, and adulthood as seen within the context of normal development; consideration of various theoretical, diagnostic, etiological, and therapeutic viewpoints; practice with rating scales and inventories: Assessment integrating the DSM-IV.

EDUG 781. Management Techniques and Curriculum for the At Risk and Behaviorally Disordered. 3 Credits.

Study of models for the management of teaching and learning of the At Risk and the behaviorally disordered student; review of informal assessment techniques; emphasis on planning and management of teaching and learning; methods for developing positive social skills. Examination of support services in the school and community which strengthens family partnerships. Curriculum issues for students in inclusive or special education settings explored. Minimum of 25 hours of observation/fieldwork.

EDUG 782. Psychology and Education of the Mentally Retarded. 3 Credits.

Analysis of biological, psychological, and social factors associated with mental retardation; etiology, definition, and classification treated; problems in differential diagnosis explored; and emphasis on exemplary programs and curriculum for the mentally retarded.

EDUG 783. Technological Applications for the At Risk and Disabled. 3 Credits.

Examination of the use of technology in the general, special education and inclusive classroom. Experiences will include: development of websites and e-portfolios, accessing educational database sites; the use of software across the curriculum; development and implementation of curriculum based projects using technology. Opportunities for hands-on experience with instructional software.
EDUG 785. Life Science for the At Risk and Disabled Student (Grades K-8). 3 Credits.

Basic concepts of Life Science as aligned with the N.Y.S. Learning Standards and Curriculum K-8. Emphasis on inquiry and problem solving skills, and differentiation of content. Examination of scientifically validated methods and materials for the at risk and disabled in the special education or inclusive setting. Provision for hands on activities and use of cooperative learning strategies.

EDUG 787. Psycho-Educational Assessment for the At Risk and Disabled Student. 3 Credits.

Formal and informal techniques for assessing academic skills applicable to the at risk and disabled student; observational and interviewing procedures; inventories, rating scales, standardized tests; and instruments assessing language arts and math. Students must demonstrate competence in selection, administration, scoring and interpretation of psycho-educational tests, and conferencing with parents. Opportunity for hands on experience with data analysis. Course conducted in the Manhattan College Learning Center or field site. Minimum of 12 hours of supervised clinic/fieldwork.

EDUG 789. Methods of Teaching the At Risk and Disabled Student (Grades K-8). 3 Credits.

Examination of N.Y.S. Content and Performance Standards, curriculum, methods, and materials applicable to at risk and special education students grades K-8; emphasis on the modification of materials and strategies for instruction in general, special education and inclusive classrooms. Students must demonstrate competence in the writing and implementation of an individual educational plan, and conferencing skills with parents. Opportunities for hands-on experiences with materials and instructional software. Course conducted in Manhattan College Learning Center or field site. Minimum of 14 hours of supervised teaching.

EDUG 791. Independent Study in Special Education. 3 Credits.

Independent project in area of Special Education conducted under the guidance of faculty member. Student must submit outline of proposed study prior to registration. Permission of the Director of Special Education Program required.

EDUG 799. Administration and Supervision of Special Education Programs. 3 Credits.

Theory and practice of special education administration and supervision; review of legislation and regulations regarding Committee on Special Education, Individualized Education Program, inclusion and placement; effective practices related to supervision of teachers; and staff policies, records reports, pupil personnel, instructional programs. Satisfies the requirement for Child Abuse and S.A.V.E. legislation.
EDUG 800. Internship in Community Counseling. 3 Credits.

Participation in onsite counseling experiences under the supervision of agency personnel and faculty of Manhattan College. The nature of the experience will be determined by the area of specialization and agency placement. Prerequisite: Matriculation in P.D. Program, 21 credits and permission of Program Director.

EDUG 802. Foundations, Theory and Practice of Bilingual General and Special Education. 3 Credits.

This course examines the basic foundations, theories and practices related to bilingual education including the historical, political and legal foundations. Theories, literature and research related to multicultural practices as educators and/or counselors will be explored.

EDUG 805. Integrated Learning I: Social Studies and Language Arts Instruction for the At Risk/Disabled Student. 3 Credits.

American history, civics and geography, integrated with the development of literacy skills and exploration of literary genres. Incorporation of skills pertinent to Social Studies and Language Arts. Utilization of technology, Internet and software as instructional tools. Curriculum based upon the New York State Content and Performance Standards in the areas of Social Studies, Language Arts and National Geography Standards. Latest research on teaching the at risk and disabled student. Learning presented utilizing the constructivist approach for integrated instruction. Highlighted are best practices for differentiated instruction. Use of cooperative learning strategies to explore concepts. Emphasis on the importance of understanding and respecting cultural differences stressed.

EDUG 806. Inclusive Practices. 3 Credits.

Examination of: research and legislation; different models; effective practices of collaboration, team building, management, grouping, instruction; adaptation of materials and differentiated instruction to facilitate learning for the disabled student.

EDUG 807. Measurement and Assessment for Counselors. 3 Credits.

Theoretical, methodological, sociocultural, and ethical factors in the interpretation of psychological test data will be studied. An examination of basic measurement fundamentals such as types of tests and scores, reliability and validity, and essential statistical concepts will be followed by a focus on the assessment of intelligence, abilities, achievement, and personality. Specific emphasis will be on the interpretation and integration of test scores for individuals. Ethical considerations in appraisal will also be addressed.
EDUG 808. Integrated Learning II: Social Studies and Language Arts Instruction for the At Risk/Disabled Student. 3 Credits.

World history, civics, and geography, integrated with the development of literacy skills and exploration of literacy genres. Incorporation of skills pertinent to Social Studies and Language Arts. Utilization of instructional technology as an instructional tool for learning. Curriculum based upon the New York State Content and Performance Standards. Review of research on teaching the at risk and disabled student. Learning presented utilizing the constructivist approach for interdisciplinary instruction. Highlighted are best practices for differentiated instruction. Use of field trips to explore concepts. Emphasis on investigation of issues from different cultural perspectives.

EDUG 809. Organization, Administration and Supervision of Physical Education Programs. 3 Credits.

Theory and practice of administration and supervision of physical education instruction for general and special education students in elementary and secondary school; review of legislation and requirements; discussion of developmentally appropriate practice; effective practices related to the selection, training, and supervision of personnel; integration of lifelong learning and practice of healthful behavior including nutrition and exercise, and policies, record keeping, reporting, instructional strategies, materials, and programs. Satisfies the requirement for Child Abuse Recognition and Reporting.

EDUG 810. Bilingual and Multicultural Assessment of Linguistically and Culturally Diverse Students. 3 Credits.

This course will focus on the development of competencies in multidisciplinary assessment of linguistically and culturally diverse students with a specific emphasis on general and special education with limited English proficiency (LEP). The course will also focus on the relationship between the linguistic and cultural influences of major racial and/or ethnic groups and their communication patterns. Format and information assessment of behavioral functioning is included. 10 hour clinical req.

EDUG 811. Brain Compatible Learning for the At Risk and Disabled Student. 3 Credits.

Overview of brain development research and theory; impact on learning; and application to classroom instruction for the at risk/disabled student. Opportunity for hands-on experience with materials and methods of brain compatible instruction.
EDUG 812. Integrated Curriculum: Math, Science and Technology II for At Risk and Disabled (Grades K-8). 3 Credits.

Examination of Science, Math and Technology Content and Performance Standards and curriculum for at risk and disabled students. Review of research on teaching and learning presented utilizing the constructivist approach. Utilization of instructional technology, as an integral component of the instructional process. Focus on best practices for differentiated instruction to meet the needs of the at risk and disabled student. Use of cooperative learning strategies and technology to enhance teaching and learning. Exploration of concepts and strategies for enhancing instructional leadership. Opportunities for hand-on experience with materials and instructional technology.

EDUG 813. Curriculum, Methods, and Materials in Core Subjects for Bilingual, General, & Special Education. 3 Credits.

Focus on instructional methods, material and strategies for teaching standards based Social Studies, Language Arts, Math and Science using native language and English for the Bilingual, General and special education students. Exploration of instructional practices that meet the developmental and educational needs of the Bilingual English learner. Attention to cross cultural learning style that impacts instruction with emphasis given to differentiating and adapting instruction to meet educational and linguistic characteristics of bilingual general and special education students. (10 hours of observation in a bilingual/special education setting). 

EDUG 814. Curriculum, Assessment and Methods of Teaching Native Language Arts in Gen & Spec Education. 3 Credits.

Exploration of teaching methods, material and assessment for teaching Language Arts using native language and English. Exam of strategies incorporative listening, speaking, reading, and writing in native language as as they transition to English. Commercial and student made materials and assessment instruments explored. Attention to cross cultural learning style that impacts instruction with emphasis given to differentiating and adapting instruction to meet educational and linguistic characteristics of Bilingual general and special education students. (15 hrs of observation in a Bilingual/Special Education setting).

EDUG 815. Curriculum, Assessment and Methods of Teaching English as a Second Language in Gen and Spe Ed. 3 Credits.

Examination of instructional practices to enhance the acquisition of English Language Proficiency focusing on listening, speaking, reading and writing. To meet ESL learning standards. Commercial and student made materials explored. Focus on informal and formal assessment instruments, such as NY SESLAT addressed. Attention to cross cultural learning style that impacts instruction with emphasis given to differentiating and adapting instruction to meet educational and linguistic characteristics of bilingual general and special education students."
EDUG 816. Approaches to Counseling Linguistically and Culturally Diverse Student. 3 Credits.

This course will focus on the development of general techniques for counseling and the use of techniques specifically applicable to diverse populations and populations who are linguistically different. A case study approach will be used.

EDUG 817. Cross Cultural Counseling. 3 Credits.

This course will focus on issues in multicultural counseling in urban multiethnic educational and human services settings. Awareness of and sensitivity to social and cultural influences in counseling and in consultation services provided by counselors will be emphasized. Included will be exploration of characteristics of clients from diverse ethnic groups and their impact on counseling strategies. Course will include an experimental assessment component and consultation.

EDUG 818. Internship: Bilingual Counseling. 3 Credits.

Provides the student with an experience in gaining more knowledge of and experience in providing appropriate interventions to culturally and linguistically diverse clients.

EDUG 819. Internship in Mental Health Counseling I. 3 Credits.

Participation in on – site counseling experiences under the supervision of licensed or certified Mental Health Counselors, Social Workers, psychologists, or Medical Doctors in agencies, community centers, hospitals, and in certain instances, schools. Supervision and integrating seminar including clinical diagnosis with DSM-IV. Prerequisite: Matriculation in Mental Health Master’s, completion of EDUG 732, 30 credits and permission of MHC Program Advisor.

EDUG 820. Consultation in the Schools. 3 Credits.

Consultation skills for the general education teacher, special educator, support staff and school administrator. Analysis of various theories and models of school consultation. Review of current research strategies and supervised practice of observational, interactive communication, and collaborative problem solving skills for systems change. Laboratory and/or field experience required. Prerequisite: Permission of the Director of Special Education.
EDUG 822. Differentiated instruction for the At Risk and Disabled (Grades K-8). 1-3 Credit.

Exploration of NYS Content and Performance Standards and sequence of curriculum. Techniques for adapting curriculum to meet the needs of the at risk and disabled student; strategies for bridging the gap between curriculum and methodology in special education and general education; and use of technology as a tool for learning and teaching. Strategies for grouping and individualization. Fundamentals of lesson planning stressing differentiated instructional practices. Provision for hands-on experience with materials and software.

EDUG 835. Proficiencies for Educational Leadership. 3 Credits.

Skills and strategies for creating the learning community that characterizes the quality school; group processes for shared decision-making and collaboration with staff and parents; communication skills for dealing with the school constituencies; case studies, simulations. Based on NYS Essentials for School Leaders. Course related leadership experience required. Prerequisite: 735 or permission of Program Director.

EDUG 836. Issues in School Based Management, Supervision and Curriculum. 3 Credits.

Through case studies, simulations, role play, and web resources, participants will plan to deal with pertinent issues arising from questions, advantages and obstacles to school based management, including but not limited to, school choice, parent and teacher involvement, goal driven instruction and delivery of instructional services, use of technology; financial and strategic planning.

EDUG 837. Organizational Development. 3 Credits.

Exploration of change factors and their effect on human behavior and interrelationships; effect on the school social system; leadership skills required for participatory decision-making; dealing with conflict and strategies for conflict resolution; power issues related to empowerment, authority, responsibility and accountability; and creating and developing the learning community. School wide development plans, school leadership teams, data-based strategic planning. Course related leadership experience required.

EDUG 838. Evaluating Leadership Effectiveness. 3 Credits.

Skills and strategies for determining needs, outcomes, and program effectiveness vis a vis student achievement, values promotion, ethics, accountability, staff participation; promoting parent and local board inclusion in philosophy and goal setting; and evaluating the quality of educational programs, supportive environments and school climate; exploration of the essential characteristics of school leaders in assisting students to meet state standards. Course related leadership experience required.
EDUG 839. School Finance. 3 Credits.
Issues for administrators, business managers, and other school personnel related to budget, finance and accounting.

EDUG 841. Leadership, Administration and Supervision of the Middle School. 3 Credits.
Theory and practice of school administration and supervision; organizational characteristics and components of the successful American middle school; effective practices related to advisement, staff collaboration, teaching teams, developmentally appropriate instructional programs for the middle school child, standards based teaching and learning, authentic assessment, guidance of the early adolescent, student engagement, parent involvement, safety and discipline issues, evaluation of student progress, career guidance.

EDUG 842. Leadership, Administration and Supervision of the Secondary School. 3 Credits.
Theory and practice of school administration and supervision; organizational characteristics and components of the successful secondary schools; consideration of cross cultural and international practices related to student achievement and involvement in learning; scheduling, advisement, collaboration, teaming, apprenticeships for the secondary school student; standards based teaching and learning, authentic assessment, guidance of the adolescent, safety and discipline issues, evaluation of student progress career guidance/ internships/developmentally appropriate service projects.

EDUG 844. School Based Management Functions. 3 Credits.
Analysis, discussion, intensive study of the evolution of educational reform movements leading to site based management for administrative and supervisory personnel; theory, principles and practices for team building, shared decision-making and relationships at the local, district, and system levels. Participants present evidence of knowledge, skills and dispositions for school building leadership. Course project integrates theory, concepts, principles and application of content to elementary, middle, or secondary school leadership in urban and suburban settings; including strategic planning, collaboration and evaluation of outcomes for school leadership teams, board relationships, mentoring, and program development. Course related leadership experience required.
EDUG 845. Computer and Technology Utilization for Instructional Delivery. 3 Credits.

Role of the supervising teacher, consultant, and/or school administrator in improving teaching/learning by survey of computer programs for curriculum enhancement. Strategies for staff development/collaboration to assess effectiveness of such programs. Use of state standards for curriculum planning and instruction. Field experience will include exploration of existing programs utilizing computers to improve instruction. Opportunity for hands-on experiences (lab) to investigate software and hardware. Course related leadership activities required. Prerequisites: EDUG 749, 745 or permission of Program Director.

EDUG 846. Managing the Quality School. 3 Credits.

Applying concepts, principles, and techniques of Total Quality Management with emphasis on application to managing a school or district; using TQM to enhance management of the educational enterprise on the local or district level and administrative leadership. Course related leadership experience required.

EDUG 847. Total Quality Management for Educational Leaders. 3 Credits.

Course participants engage in reflective practice on ways to provide leadership for quality management in the school or district setting. With real life" needs to attend to.

EDUG 848. Standards Based Performance Assessment. 3 Credits.

This advanced assessment course for school and district administrators, chairs, subject area coordinators, considers the effectiveness of the school program and teachers in meeting learning standards for the content areas. Relates student outcomes to standards, school programs and performance assessment of teaching; aligns standards, curriculum, and assessment to design student learning experiences. Course related leadership experience required.

EDUG 849. Advanced Computer Applications for School Administrators. 3 Credits.

Computerizing school offices; the selection and evaluation of interactive computer software for professional development, supervision, and improvement of instruction; use of technology for data based decision making. Selection of software and hardware for networking, internal and external communication. Prerequisite: EDUG 749 or permission of Program Director.

EDUG 850. Advanced Practicum for Counselors in Group Procedures. 3 Credits.

Advanced counseling practice with groups under the supervision of the faculty; seminars, supervisory conferences and consultation; group experiences. Prerequisite: EDUG 725, 33 credits and permission of Program Director.
EDUG 851. Data Analysis and Report Writing in Educational & Psychological Research. 3 Credits.

This course advances the student’s skill in engaging in research and in evaluating research. Students complete a Master’s paper in research conducted in the student’s chosen area of specialization – elementary school, secondary school or non-school counseling. Permission of Program Director. Completion of project required for admittance into Practicum for School Counseling students.

EDUG 852. Internship in Counseling I. 3 Credits.

Participation in on-site counseling experiences under supervision of pupil personnel services staff of host school, agency or hospital and faculty of Manhattan College. Prerequisite: Matriculation in P.D. program, 21 credits and permission of Program Director.

EDUG 853. Counseling the College Applicant. 3 Credits.

Examination of the necessary components in the college admissions selection process, i.e. high school preparation, standardized test scores, advanced placement credit, career preparation and counseling, financial aid, special programs, academic criteria, and personal statement. Review of the various guides and technological information available to the counselor and applicant, i.e Internet, Rezun, College Board, Peterson’s College View and College Link.

EDUG 854. Supervised Fieldwork in Counseling. 3 Credits.

Opportunity for students to strengthen their knowledge and skills in the counseling setting. Students work under the supervision of a faculty member in an approved placement with individualized supervision regarding cases. Minimum of 90 hours in the field, project and supervision required. Matriculation in the Counseling program; EDUG 721, 722; and permission of Program Director.

EDUG 855. Supervised Fieldwork in Special Education. 3 Credits.

Opportunity for students to strengthen their knowledge & skills in the special education or inclusive setting. Students work under supervision of a faculty member in an approved placement. Minimum of 75 hours in the field and project required. Matriculation in the Special Education Program, and permission of the Director of Special Education.

EDUG 856. Supervised Fieldwork: General and Special Education. 3 Credits.

Opportunity for students to strengthen their knowledge & skills in the special education or inclusive setting. Students complete fieldwork in an approved placement. Minimum of 50 hours in the general education classroom and 25 hours in the special education/inclusive classroom required. Matriculation in the Special Education Program, and permission of the Director of Special Education.
EDUG 857. Supervised Fieldwork in Alcohol and Substance Abuse Counseling. 3 Credits.

Opportunity for students to strengthen their knowledge and skills in an alcohol/substance abuse setting. Students must work under the supervision of a faculty member and appropriate on site staff in an approved setting. Minimum of 100 hours in the field and project required. Matriculation in the Alcohol/Substance Abuse program; EDUG 705, 721, 722 and permission of Program Director and Director of Graduate Education.

EDUG 858. Seminar, Observation, and Internship in Special Education (5 Year Program). 3 Credits.

Observation and practice teaching to meet specific requirements to gain proficiency in teaching disabled students in the Special Education and/or Inclusive classroom. (Full-time student teaching for one semester.) Students must demonstrate teaching competence under the supervision of the teacher in the field and a faculty member. Seminar sessions include the discussion of: Behavior Management, Common Core Standards for Math and Literacy, differentiated instructional strategies, Child Abuse Recognition and Reporting and SAVE requirements, diversity and current issues in the field of Special Education. Student teaching logs, journals, and special education program portfolio required. Prerequisite: Matriculation in the five-year program, minimum G.P.A. 3.0 and meet the physical, mental, speech, language and other standards established for the profession. Permission of the Director of Special Education. Satisfies the requirement for S.A.V.E. and child abuse.

EDUG 859. Approaches to Multicultural Counseling: Theory and Practice. 3 Credits.

An examination of the theories and practices of multicultural counseling in urban multiethnic educational and human services settings. Awareness of and sensitivity to cultural factors in counseling and in consultation services provided by counselors will be emphasized. Course will include an experiential component and consultation.

EDUG 860. Teaching Literacy for Understanding to At Risk and Disabled (Grades K-8). 3 Credits.

Examination of the knowledge and skills to implement standards-based literacy instruction with the at-risk and disabled student. Opportunities provided to discuss and create literacy curriculum which address issues such as identifying what students need to understand; how to help develop the understandings; how to gauge student progress; and how to provide feedback to students.
EDUG 862. Seminar/Practicum in Teaching: The Student with Disabilities 1-6. 3 Credits.

Analysis of current problems, equity and legal issues, differentiated instructional strategies and trends in Special Education. Students must demonstrate satisfactory teaching competency under supervision of appropriate personnel in the field. Satisfies the requirement for S.A.V.E. and Child Abuse Recognition and Reporting. Minimum of 50 hours of supervised teaching at the 1-3/4-6 grade levels in Special Education/inclusive classroom. Student teaching logs, journals and special education portfolio required. Prerequisite: Matriculation in the Special Education program, minimum G.P.A. 3.0 and meet the physical, mental, speech, language and other standards for the profession. Permission of the Director of Special Education.

EDUG 863. Seminar/Internship in Teaching: General and Special Education 1-6. 3 Credits.

Observation and practice teaching to meet the specific requirements to gain proficiency in teaching general and special education. A minimum of 20 days of student teaching in grades 1-3 or 4-6 in the special education or inclusive classroom is required. A minimum of 20 additional days of student teaching, at a different level (1-3 or 4-6), in the general education classroom is required, for a total of 40 days. Students must demonstrate teaching competence under the supervision of the teacher in the field and a faculty member. Seminar sessions include discussion of: behavior management, Common Core Standards for Math and Literacy, differentiated instructional strategies, diversity and current issues in the field of Special Education. Satisfies the requirement for S.A.V.E. and Child Abuse Recognition and Reporting. Internship journals, logs and special education program portfolio required. Prerequisite: Matriculation in the Dual program, minimum G.P.A. 3.0 and meet the physical, mental, speech, language and other standards for the profession. Permission of the Director of Special Education.

EDUG 864. Counseling the College Student. 3 Credits.

This course is designed to focus on the theory, research and practice related issues relevant to the psychological; development of college students. Focus on intellectual, psychosocial, moral and vocational development with attention to the needs of special populations. Students will examine a service model including collaboration within and outside the institution and including examination of the legal and ethical issues related to counseling the college student.
EDUG 866. Practicum in Leadership, Supervision and Consultation in Counseling. 3 Credits.

Leadership, supervision and consultation provides the student with an experience in learning to facilitate the further professional development of a counselor-in-training. Although one goal is to prepare the experienced counselor in skills to supervise, the primary focus is on the ability to establish and develop counselor-supervisor relationships, case conceptualization and consultation, and understanding of leadership and organizational roles in relation to counseling sites.

EDUG 867. Professional Orientation to Counseling: Standards, Law, Ethics, and Evaluation. 3 Credits.

This course is designed for the beginning practitioner to provide exposure to issues related to professional functioning. Emphasis will be on ethical and legal issues as they relate to the profession of counseling and to each other. In addition the legal and ethical factors related to program development and evaluation will be considered.

EDUG 868. Integrated Curriculum; Math/Science/Technology. 3 Credits.

For District and School Administrators, department chairs, grade level and subject area coordinators, curriculum, and staff developers, this content based course incorporates content and performance standards from Math, Science and Technology, as well as literacy standards for differentiating instruction for a diverse student population including English language learners; data based evaluation strategies, and system wide decision making based on NYS content areas.

EDUG 869. Integrated Curriculum; Social Studies/Language Arts. 3 Credits.

For District and School Administrators, department chairs, grade level and subject area coordinators, curriculum, and staff developers, this content based course incorporates content and performance standards from English, Language Arts, Social Studies and Physical Education/Home Ec/Careers, as well as literacy standards for differentiating instruction for a diverse student population including English language learners; data based evaluation strategies, and system wide decision making based on NYS content areas.

EDUG 870. TQM: Quantitative Process Control in Education. 3 Credits.

This course for district and school lenders and educators identifies key data analysis processes, roles of components and variations present in them. Using Pareto charts, histograms, control charts and other data mining tools, participants measure and count key data to develop a Plan. Do, Study, Act methodology to improve the administrative and educational process in the school and district. Course related leadership experience required.
EDUG 872. Probability and Statistics Using Technology. 3 Credits.

This is a content course in Probability and Statistics for teachers. Topics include descriptive statistics, rules of probability, sampling distributions, statistical inferences, regression and correlation. Technological tools used include calculators, spreadsheet package Excel, the computer algebra Maple, and the classroom management system Blackboard.

EDUG 873. Theory and Practice in Middle Schools for the At Risk and Disabled Student. 3 Credits.

Emphasis on research and theory relevant to the physical, cognitive, social and emotional development of the Middle School adolescent. Examination of developmentally appropriate practices in the Middle School. Overview of organizational patterns that take into account the developmental needs of the At Risk and disabled Middle School student in today’s multicultural society. Different approaches to scheduling, advisement and grouping analyzed. Strategies that facilitate parental involvement explored. Review of innovative practices and current issues in Middle School education.

EDUG 874. Curriculum and Pedagogy in the Middle Schools for At Risk and Disabled Student. 3 Credits.

Examination of standards based Middle School curriculum with emphasis on an integrated approach to instruction for the At Risk and disabled student. Exploration of learning and teaching within a multicultural context. Emphasis on developmentally appropriate methods, and instructional materials to enhance learning. Study of techniques and differentiated instructional strategies to adapt curriculum to meet the at risk needs of the At Risk and disabled students in the special education, inclusive and general education classrooms. A minimum of 30 hours of clinical and/or field work required.

EDUG 875. Foundations in Learning and Teaching with Technology. 3 Credits.

The foundation course provides participants with background for integrating technology into education (societal issues, learning theories, planning and implementation); principles and strategies for using software, media tutors and tools (instructional and productivity software, multimedia and hypermedia); and integrating technology into specific teaching/learning discipline (language arts, science, math, social studies, art, music, physical ed, health, special education etc.) Designed for educational administrators, staff developers, counselors, general and special education teachers and professionals from other fields. Participants will learn to infuse the appropriate technologies into their own learning environment. Field experience required.
EDUG 876. Integrating Technology in Adult Learning and Collaboration. 3 Credits.

Participants in this course will gain knowledge and understanding of adult learning theory and the ability to collaborate with professional staff to support instruction and enhance student learning using educational technology. Designed for educational administrators, staff developers, counselors, general and special education teachers and professionals from other fields. Participants will engage in web design and videography. Field Experience.

EDUG 877. Instructional Design, Technology and Information Processing. 3 Credits.

Focus on instructional design and the role of cognitive processing theory in the development of technologies for learning environments. Emphasis on curriculum and how participants best learn from multimedia technologies. Knowledge and understanding of adult learning theory provides the foundation for the development and implementation of collaborative strategies appropriate for adult learners. Designed for educational administrators, staff developers, counselors, general and special education teachers and professionals from other fields to enable them to integrate technology into professional practice in order to provide optimal learning content. Field Experience.

EDUG 878. Advanced Group Counseling: Practice. 3 Credits.

An experiential course that focuses on application of group process to different counseling situations. Team projects will include facilitating and cofacilitating techniques, appropriate interventions and peer feedback. Participants will run outside groups and receive feedback and analysis. Group leadership styles will also be reviewed.

EDUG 879. Integrative Project and Seminar in Teaching and Learning with Technology. 3 Credits.

This capstone course in Teaching and Learning with Technology synthesizes the theoretical and technology components of the program. Participants will present a project that includes a research component conducted at a field site and demonstrate their understanding of teaching and learning with technology. Online and real time seminar sessions will provide support for effective needs assessment and strategic planning for the improvement of teaching and learning. This guided project will be a culmination of sixty hours of fieldwork done in the certificate courses. Designed for educational administrators, staff developers, counselors, general and special education teachers and professionals from other fields. Field Experience.

EDUG 880. Nature and Needs of Students with Autism Spectrum Disorder. 3 Credits.

Focus on etiology, major trends and issues concerning Autism Spectrum Disorder. Emphasis on: collaboration, inclusion, service delivery models, roles of special and general education teachers, individualized educational programs, family involvement, and community resources. Satisfies the requirement for Autism.
EDUG 881. Psychoeducational Assessment of Autism Spectrum Disorder. 3 Credits.
Focus on the educational assessment of students with Autism Spectrum Disorder. Analysis of formal and informal assessment instruments. Emphasis on gathering and analyzing information in order to plan meaningful instruction, evaluate interventions, select appropriate learning curricula and materials, and make appropriate educational decisions for individuals with Autism Spectrum Disorder. Satisfies the requirement for Autism.

EDUG 882. Behavior Management and Counseling of Families of Individuals with Autism Spectrum Disorder. 3 Credits.
Focus on models for the behavior management of students with Autism Spectrum Disorders. Emphasis on management techniques, classroom and family organization, conferencing issues based on student needs and development. Satisfies requirement for Autism.

EDUG 883. Curriculum, Methods, Social Skill Development and Instructional Design for Students with Autism Spectrum Disorder (Grades K-8). 3 Credits.
Curriculum, methods and materials for social integration and teaching children with Autism Spectrum Disorder in self-contained and inclusive settings with attention paid to NYS Content and Performance Standards (K-8). Design of individualized educational plans and creation of lesson plans. Demonstration of teaching skills emphasized in order to accommodate instruction and materials to the Autism Spectrum Disorder student. Satisfies requirement for Autism.

EDUG 884. Integrative Project in Autism. 3 Credits.
Project in area of Autism Spectrum Disorder conducted under the guidance of Faculty member. Student must submit an outline of proposed study prior to registration. Permission of the Director of Special Education required. Satisfies requirement for Autism.

EDUG 885. Internship: Teaching Students with Autism Spectrum Disorder. 3 Credits.
The internship experience and seminar provide the opportunity to apply knowledge, skills and strategies related to teaching children with Autism Spectrum Disorder in the classroom setting. Each internship is guided by a certified teacher and college supervisor. Students will develop teaching competencies while experiencing the personal and professional roles of a teacher of students with Autism Spectrum Disorder. The seminar is an opportunity for students and faculty to discuss current issues and ideas related to Autism Spectrum Disorder and to examine the relationship between these ideas and the classroom experiences. Internship portfolio, logs and journals required. Satisfies requirement for Autism.
EDUG 887. Mentored Research. 1 Credit.

Designed to provide mentoring for the collection of data, analysis of findings, discussion, conclusions and recommendations of the research paper. Students must have completed sections I, II and III of their major paper. Does not apply to degree. Pre-requisite: EDUG 713 or a previous major paper that meets program research requirements. Permission of Director. One credit. Pass/Fail.

EDUG 888. Independent Study in Research. 1 Credit.

Designed to provide mentoring for the collection of data, analysis of findings, discussion, conclusions and recommendations of the research paper. Students must have completed sections I, II and III of their major paper. Special Education and School Leadership participants register for the section designated for their program. Does not apply to the degree. Prerequisite: EDUG 713. Permission of the Program Director.

EDUG 889. Internship/Seminar II in School Building Leadership. 3 Credits.

Designed for ongoing supervision of the capstone leadership experience for completion of the internship project, portfolio, and exhibit of competencies. Participants complete 400 hours of leadership internship in 15 weeks full time or 30 weeks part time. Prerequisite: EDUG 600, 100 hours of CRLA, 18 credits of the required strands, permission of the Program Director.

EDUG 890. Supervised Fieldwork in Administration. 1 Credit.

EDUG 891. Foundations in Evaluation, Assessment, and Diagnosis. 3 Credits.

This foundation course is aimed at providing a theoretical and practical basis for individual assessment of personality, intelligence and aptitude, such as WISC-IV, WAIS-III, WIAT-II and TAT. Concepts of intelligence, applications to the educational settings, social and ethical issues of individual testing will be considered. Initial practice in administering major instruments of psychological assessment will allow students to develop an understanding of their diagnostic and therapeutic value. Theory of projective psychology and its application to personality assessment is combined with supervised practice in administering and interpreting projective tests. Special attention to figure drawings and TAT, but projective component of Bender-Gestalt Visual Perceptual Test is also included. The course provides initial experience in evaluation, assessment, diagnosis and treatment planning. Students will practice by administering the instruments to each other. Focus will be on integrating test material into comprehensive reports having meaning for the referral source and the client. Prerequisite: 18 credits in P.D. program.
EDUG 894. Internship Mental Health Counseling II. 3 Credits.

Continued participation in on-site counseling, experiences under the supervision of certified or licensed personnel of host school, agency or hospital. Particular emphasis on case assessment, analysis, diagnosis with DSM-IV, recommendations for services, and the delivery of planned interventions. Prerequisite: Matriculation in the MHC Program, successful completion of EDUG 819, and permission of MHC Program Advisor.

EDUG 896. Concepts of Wellness. 3 Credits.

A study of the diversified nature of health as it relates to everyday living by examining vital health areas and issues relevant to the concerns of students. An introduction to identification and reporting of suspected child abuse and maltreatment; instruction in preventing child abduction and abuse of alcohol, tobacco and other drugs; and providing safety education including instruction in fire and arson prevention. (Dual M.S.Ed.).

EDUG 897. Principles and Practices of Education. 3 Credits.

Crucial issues in education: curricula objectives and designs, drug and child abuse, types of schools, special education programs, moral and spiritual values, community resources, educational law and school finances. 15 hours field visitation required. (Dual M.S. Ed.).

EDUG 898. Language and Literacy. 3 Credits.

Introduction to language acquisition and literacy development by native English speakers and students who are English Language Learners. Techniques for developing and listening, speaking, reading and writing skills. 10 hours of field required. (Dual M.S. Ed.).

EDUG 899. Physical Science for the Teacher of the At Risk and Disabled (Grades K-8). 3 Credits.

Introduction to basic principles and concepts of physical science as aligned with the N.Y.S. Learning Standards. Emphasis is on constructivist inquiry based problem solving, methods and materials appropriate for the at risk and disabled student. Appropriate hands-on activities to illustrate fundamental concepts.
School of Business

Mission

The School of Business shares with the rest of Manhattan College a commitment to the development and growth of each student. Inspired by Lasallian tradition, the mission of the School of Business is to prepare students from diverse backgrounds for the challenges that they will face as business and community leaders. The faculty of the School, as teachers, scholars and mentors, foster the development of the whole person by integrating a values-based education with current business theory, skills and practices.

Application Procedures

The five year MBA program is currently open only to Manhattan College School of Business students who are in their junior or senior year. If possible, it is recommended you apply during your junior year as this will allow maximum flexibility in MBA course scheduling and give you time to remedy any deficiencies in your application.

It should be noted that the program is meant for full-time students. The scheduling of MBA classes may not be flexible enough for a student to take a part-time job during their fifth year of study. This should be a factor in your decision to apply to the program.

Each academic year the MBA director holds at least two recruiting events on campus. All juniors and seniors in the School of Business will be notified via e-mail about this event. Interested students should attend these events to familiarize themselves with the program requirements and begin the application process. However, if you are unable to attend either of these events you should contact the MBA Director (http://home.manhattan.edu/~marc.waldman/).

Applicants will be assessed according to the following criteria:

1. GPA: Applicants should have an overall G.P.A. of 3.0 (on a 4.0 scale).
2. Personal resume: Applicants must submit a resume including examples of academic, co-curricular and extracurricular achievement which can be used to assess personal qualities and ability to complete the program.
3. Recommendations: Applicants must submit two letters of recommendation attesting to the applicant’s intellectual ability, leadership potential and ability to complete the program.
4. Official GMAT scores: The average GMAT score of students admitted to the MBA program is 500 points.

Juniors should submit all application materials by the end of their junior year. Seniors should submit all application materials as soon as possible and no later than April 1st of the senior year.

Admission

The MBA admissions committee meets twice a year – once during the Fall semester and once during the Spring semester. However, as the number of students admitted to the
MBA program is limited, it is in the interest of the applicant to complete the application as early as possible.

Applicants who, in the opinion of the admissions committee, are capable of successfully completing the program and meet the requirements will be offered admission. Conditional admission will be offered to students who, in the opinion of the admissions committee, are capable of successfully completing the program but fall short in one of the admission requirements. For example if a student has a low GMAT score the committee may offer admission only if the student retakes the GMAT and achieves a higher score.

A student offered conditional admission should fulfill all deficiencies before April 1st of their senior year. A student fulfilling their conditional admission requirements after this date must appeal to the admissions committee. This can be done by contacting the MBA Director (http://home.manhattan.edu/~marc.waldman/).

**MBA Program**

All students admitted to the MBA program are expected to complete the degree requirements by the end of their fifth year. Accepted students typically take two MBA level courses in their senior year. Additionally MBA students will need to take courses during the summer session of their senior year or during the winter session of their fifth year. The program is meant for full-time students and class scheduling may not be flexible enough to accommodate a part-time job.

Two different five-year MBA course tracks are offered. One track leads to a B.S. in Business and an MBA. Students in this track will complete 150 undergraduate and graduate credit hours over a five year period. The other track leads to a B.S. in Professional Accounting and an MBA. Accounting students are expected to complete this second track. Students in this track will complete 153 undergraduate and graduate credit hours over a five year period.

**MBA Experiential Courses**

**MBAE 601. Internship. 3 Credits.**

Students will receive guidance in securing an appropriate internship and must obtain faculty sponsorship. Faculty supervisors will define appropriate academic activities in parallel to the work requirement in order to provide a complete internship experience.

**ACCT 608. Accounting Theory and Research. 3 Credits.**

This course is a seminar in current topics in Accounting. The topics include readings on research methods, revenue recognition, assets, liabilities, equity, and accounting impact on financial markets. Emphasis is on applied accounting research, critical thinking, and communication skills.
MBAE 602. Research. 3 Credits.

Faculty supervisors will direct complete research activities. These activities may focus on specific industries and can build on students' internship experiences.

MBAE 603. Entrepreneurship. 3 Credits.

This course will encompass the creation and planning of a new business, which helps the economy by creating new jobs, which becomes jobs of the future. Included within these focus would be analysis of both for-profit and non-profit organizations (i.e. foundations, charitable organizations, community organizations and hybrid firms which employ social entrepreneurship) Topics of social and corporate responsibility feed into the increased awareness of sustainability. Subsumed within this course are the core management functions tailored to small business. Included topics discussed from an interdisciplinary point of view are: MGMT, MKTG, FIN, ACCT, Leadership and Human Resources, Operations, Strategic Planning, Organization and Control.

MBAE 604. Business Plan Project. 3 Credits.

This class comprises the experiential component of the 2 course entrepreneurship sequence. Individual students or student teams of 2 to 3 people will be paired with an entrepreneur or small business owner for the summer. Each owner will have a pressing business problem or issue that need to be addressed. The student/student team will be shadowing the business owner/business operation, being a part of business deliberations as they arise, and completing the course with a consulting report for the business owner/entrepreneur.

MBAE 605. Going Global. 3 Credits.

Emerging Economics, specifically the BRIC (Brazil, Russia, India and China) nations account for a significant share of global growth and output. Indisputably, if one is to succeed in business in our new global economy, one must understand not only the impact of the BRIC economics on the US, but also how firms integrate these economies into their global supply chains for optimal efficiency and performance. The objective of this course will be to examine BRIC nations at both the macro and micro levels. We will examine how one does business in these countries by investigating the institutions, resources, firms and cultural norms of each BRIC nation along with some general trends in other emerging economies.
MBAE 606. Doing Business: Study Trip. 3 Credits.

This is a unique course in which students would spend ten days (ideally, spring break) abroad in either India or China. Considering that India and China are the fastest growing economies in the world, understanding their unique place in the global economy and how businesses operate within each country is of critical importance to a well-rounded MBA graduate. In both countries, the structure of the course will be arranged around three main elements: onsite visits to local businesses to understand the way in which Indian/Chinese (respectively) businesses operate; classroom style learning sessions in which Indian/Chinese businessmen, politicians, intellectuals, and social activists discuss contemporary issues and problems relating to Indian/Chinese economy and business environment. Both trips would include some tourism to explore the rich history and culture of these countries.

MBA Core Courses

MBAC 611. Advanced Data Analysis. 3 Credits.

Business decisions are usually based on thorough data analysis. However, today’s data sets are growing at an incredible rate – massive data sets of several hundred gigabytes or even a few terabytes are rapidly becoming the norm. Simple spreadsheet or database techniques no longer suffice to fully analyze data of this magnitude. New computing engines and techniques will be required. In this course we will examine these techniques utilizing advanced analysis tools such as MATHEMATICA – a modern mathematical computation engine and development environment. Topics covered in this course include data formats, importing/exporting data, working with large databases, MATHEMATICA programming, statistical analysis, data mining, data visualization and parallel computing.

MBAC 612. Supply Chain Analysis. 3 Credits.

Supply chains are an integral part of contemporary business practices. This course will examine key issues related to the design and management of supply chains. It will include discussion on the integration of various parts of the supply chain, including suppliers, factories, distribution centers, warehouses and retailers. Theories related to the efficient distribution of products to customers will be presented. Also, management techniques addressing tradeoffs between cost and service will be discussed. The use of information systems in supply chain management will be introduced. Much of the course concepts will be covered through case studies and simulations.

MBAC 613. Fundamental Analysis For Forecasting, Valuation And Risk. 3 Credits.

This course examines the use of financial statements for forecasting, building valuation models and analyzing security risk. It combines theoretical accounting and finance models with practical problems, cases and Excel applications. Recent turmoil in financial markets emphasizes the importance of rigorous, fundamental analysis in pricing debt and equity securities beyond simple valuation ratios or market momentum.
MBAC 614. Managerial Economics. 3 Credits.

Managerial Economics introduces the students to the application of economic principles to key mgmt decisions within organizations. This course consists of three parts. Part I examines the theory of demand and the relevant estimation and forecasting techniques. Part II introduces the economic theories of production and cost in the short and long run. Finally, Part III combines all the elements of demand, production, and cost as we examine the notion of profit maximization and pricing strategy in case of perfectly and non-perfectly competitive markets.

MBAC 621. Reading/Cases in Financial Reporting. 3 Credits.

The purpose of this course is to explore case studies in financial accounting. The case studies will present a variety of scenarios including issues of fraud and corruption in the post Enron era. Students will be fully involved in the understanding of the legislation and the roles of regulatory bodies both in the US and in foreign countries. The course will provide a mixture of theory and practice and will introduce students to analytical problem solving using the case method.

MBAC 622. Leadership and Organizational Behavior. 3 Credits.

This course uses a behavioral science approach to help students gain an understanding of leadership and its impact on the organizational behavior of individuals. Students will examine leadership theories, learn about current research findings, investigate examples of leadership in practice, and engage in developmental activities to evaluate and enhance their leadership skills.

MBAC 623. Designing and Operating Sustainable Business. 3 Credits.

As natural resources become depleted and carbon dioxide emissions contribute to global warming at alarming rates, managers are realizing that developing strategies for sustainability are critical for both business success and the future of our planet. They are incorporating sustainability into all aspects of business, from eliminating toxic wastes in the manufacturing process, to conducting rigorous audits of subcontractor factories, and to developing safe and eco-friendly products. To succeed, managers must cultivate partnerships with community leaders, politicians, scientists, engineers and heads of governments. In this course, students study sustainability from 4 perspectives: social, economic, environmental and cultural. They will acquire the skills and knowledge needed for green-collar jobs. Via written case studies and interview materials, students will evaluate the sustainability initiatives of Procter and Gamble, Toyota Motor, Coca Cola and Google.
MBAC 631. Innovation Management. 3 Credits.

The course will examine the path of creation of new products, new ideas and new management styles. The course will include examination of styles of organization for team development and creativity, development of creative human resource practices and learning conflict management practices to encourage team building and interpersonal cooperation.

MBAC 632. Industrial Organization. 3 Credits.

The first part of the course develops standard mathematical models of firm competition, including perfect competition, monopoly and several oligopoly models with homogeneous and differentiated products. The second half of the semester will expand upon the standard models using businesses applications that lead to improved profitability, such as entry deterrence, R&D, advertising, and marketing.

MBAC 633. Managing/Marketing Service Business. 3 Credits.

This course is designed for students to gain knowledge and learn skills needed to design and develop quality service and implement delivery and recovery of service. They will also learn to develop and analyze strategies for establishing competitive advantage in the service sector. This course examines marketing and managerial issues facing service organizations using an integrative framework in which people, technology, and strategy are linked. Since services have a strong people component, internal and interactive marketing as well as traditional marketing issues will be emphasized in this course. Close relationships and necessary coordination between marketing and other function units in the organization will be examined.

Elective Courses

ACCT 609. Information Technology Assurance and Audit. 3 Credits.

Evaluation of an information 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.

MBAL 640. Strategic Games of Interaction. 3 Credits.

The objective of this course is to give a practical introduction to game theory, a branch of economics devoted to the study of strategic situations. Decision-making in strategic situations is necessarily complicated because one must take into account how one’s own actions might influence the actions taken by others – a context in which most business decisions are likely to be made.
MBAL 641. The Housing Market. 3 Credits.

Real estate is a unique market that has its own institutional structure and investment decision. This course aims at providing a thorough review of the real estate market. Students will be exposed to some of the most recent issues and debates regarding the evolution of secondary mortgage market, the subprime mortgage crisis, and the commercial and the residential mortgage backed securities.

MBAL 642. International Marketing Field Project. 3 Credits.

A team of MBA students will work on specified research tasks commissioned by a business client under the direct supervision of a faculty advisor to produce professional quality research reports which will assist the client firm in conducting international marketing and business. Students will gain field-based substantive knowledge and valuable professional skills necessary for conducting business in the international market place.

MBAL 644. Employment Law. 3 Credits.

This course will examine the statutory foundations of employment law in the United States and address a variety of legal issues related to the workplace. Consideration will be given to the rights and responsibilities of employers and employees throughout the employment relationship. Topics to be discussed will include principal-agent liability, the doctrine of employment at will, employee privacy, and the history and development of labor unions. Other employment issues will include employment discrimination, workers’ compensation, occupational safety and health and the hiring and termination process. The enforceability of confidentiality, non-competition and other restrictive covenants in employment agreements will be addressed.

Capstone Courses

MBAP 710. Professional Ethics. 3 Credits.

This is an advanced business ethics course that uses readings and case studies to explore issues in the management of ethics in organizations and in the professions. The course requires students to examine the recurring ethical issues in the world of business, in the professions and in society as a whole. Emphasis is placed on students gaining a practical understanding of ethical theories and the application of these theories in ethical decision-making. A primary focus of the course is challenging students to analyze and resolve the kinds of moral problems and ethical dilemmas they may face in their own business, professional, or personal lives.
MBAP 720. Advanced Strategic Management. 3 Credits.

Students will tackle problems related to the development or maintenance of the competitive advantage of the firm. Readings and cases by leading researchers and practitioners in the field are used to provide real context in developing the tools and skills required for strategic analysis. Students will also examine processes, models and theories for strategic planning.
Administrative Officers

(Date in parentheses following the listing of each person indicates the academic year of appointment to Manhattan College.)

**Brennan R. O’Donnell**  
*President of the College*  

**William C. Clyde**  
*Executive Vice President and Provost*  

**Maire Duchon**  
*Director of the Libraries*  
A.B. Fordham University; M.L.S. Queens College. (1975)

**William J. Bisset, Jr.**  
*Vice President for Enrollment Management*  
Full Time Faculty

Faraj Abdulahad
Associate Professor of Economics and Finance
B.S., Al-Hikma University, Baghdad; Ph.D., Boston College. (1970)

James Patrick Abulencia
Assistant Professor of Chemical Engineering

Poonam Arora
Assistant Professor of Management and Marketing
B.B.A., John Cabot University, Rome; M.B.A., Northwestern University; Ph.D., Columbia University. (2010)

Salwa Ammar
Professor of Management
B.S, University of Salford, U.K.; M.S, Ph.D., University of Florida. (2009)

Besalet Basoglu
Associate Professor of Accounting
B.S., Middle East Technical University, Turkey; M.B.A., Columbia University; D.B.A., Florida State University. (1984)

Angel Bestwick
Instructor of Education
B.S., College Misericoria; M.E., Wilkes University. (2011)

Natalia Boliari
Visiting Assistant Professor of Economics and Finance
B.S., Middle East Technical University, Turkey; M.A., Ph.D., Carleton University, Canada. (2009)

Gregory Bucci
Visiting Instructor of Accounting

Richard F. Carbonaro
Associate Professor of Civil and Environmental Engineering

Anirban De
Associate Professor of Civil and Environmental Engineering

Kevin J. Farley
Professor of Civil and Environmental Engineering

Aileen L. Farrelly
Visiting Instructor of Accounting/Law/CIS
B.S., Manhattan College; M.S., Queens College. (2011)

Corine Fitzpatrick
Professor of Education

Richard C. FitzPatrick
Professor of Management
B.A., LeMoyne College; M.P.A., Syracuse University; Ph.D., State University of New York, Albany. (1984)

Ann Marie Flynn
Associate Professor of Chemical Engineering

Charles R. Geisst
Professor of Economics and Finance, Charles A. Gargano Chair of Global Economics (italicized)
B.A., University of Richmond; M.A., New School for Social Research; Ph.D., London School of Economics. (1985)

Ahmed T. Goma
Associate Professor of Accounting
B.Comm., M.Acc., Al Azhar University; M.B.A., Baruch College; M.Phil., Ph.D., City University of New York. (1988)

Frederick D. Greene
Associate Professor of Management

Hany Guirguis
Professor of Economics
B.A., University of Heiwan; M.A., University of Cairo; M.B.A., Baruch College; M.S., Ph.D., University of Oregon. (2001)

**Bernard Harris**

*Associate Professor of Electrical and Computer Engineering*


**John S. Horvath**

*Professor of Civil and Environmental Engineering*


**Moujalli Hourani**

*Associate Professor of Civil and Environmental Engineering*


**Eric C. Huang**

*Assistant Professor of Chemical Engineering*


**Ming-Hui D. Hsu**

*Visiting Assistant Professor of Education*

B.S., Fu Jen Catholic University; M.A., Fairleigh Dickinson University; Ph.D., New York University. (2010)

**Sr. Mary Ann Jacobs, SCC**

*Assistant Professor of Education*


**Patrick I. Jeffers**

*Assistant Professor of Accounting/Law/CIS*

B.S., University of the West Indies; M.S., Polytechnic University; M.B.A., Baruch College; Ph.D., The Ohio State University. (2010)

**Nand K. Jha**

*Professor of Mechanical Engineering*


**Michael K. Judiesch**

*Associate Professor of Management, Chair of the Department*

B.S., B.S.N, Ph.D., University of Iowa. (2001)
Byungwan Koh  
*Assistant Professor of Management*  
B.A., Korea University; M.S., Kaist Graduate School of Management, Korea; Ph.D., University of Texas. (2011)

Elizabeth M. Kosky  
*Professor of Education*  

Sister Remigia Kushner, C.S.J.  
*Professor of Education*  

Shawn R. Ladda  
*Professor of Physical Education*  

Dong Hwan Lee  
*Associate Professor of Marketing*  
B.A., Kon-Kuk University; M.B.A., Oklahoma University; Ph.D., Indiana University. (1997)

Nicole J. Leo  
*Assistant Professor of Civil and Environmental Engineering*  

John C. Leylegian  
*Assistant Professor of Mechanical Engineering*  

Bahman Litkouhi  
*Professor of Mechanical Engineering*  

Scott A. Lowe  
*Professor of Civil and Environmental Engineering*  

Fiona C. Maclachlan
Professor of Economics and Finance, Chair of the Department  
B.A., Queen’s University, Canada; M.A., Rutgers University; Ph.D., New York University. (1992)

Gennaro J. Maffia  
Professor of Chemical Engineering  

John D. Mahony  
Professor of Civil and Environmental Engineering  
B.S. 1951, St. John’s University, M.S. 1953, University of Connecticut; Ph.D. 1965, University of California at Berkley. (1967)

Thomas Mancuso  
Associate Professor of Electrical and Computer Engineering  

Alfred R. Manduley  
Assistant Professor of Marketing, Director of Global Business Studies  
B.B.A., Manhattan College; M.B.A., New York University. (1959)

Paul Marnell  
Associate Professor of Chemical Engineering  

Robert Mauro  
Professor of Electrical and Computer Engineering  

Peter J. McCarthy  
Assistant Professor of Education  

Br. Raymond Meagher, F.S.C.  
Assistant Professor of Education  

William J. Merriman  
Dean, School of Education and Professor of Health and Physical Education

Mary L. Michel

Assistant Professor of Accounting, Gabriel Hauge Faculty Fellow of Business (italicized)

B.S., Duquesne University; M.S., Carnegie Mellon University; M.Phil., Ph.D., Columbia University. (1998)

Mohammad H. Naraghi

Professor of Mechanical Engineering

B.S. 1976, University of Tehran; M.S. 1978, University of Wales; M.S. 1981, Ph.D. 1984, University of Akron. (1986)

Karen Nicholson

Associate Professor of Education

B.S. 1972, West Virginia State College; M.S. 1975, West Virginia College of Graduate Studies; Ph.D. 1982, Ohio State University. (1994)

Br. Augustine Nicoletti, F.S.C.

Associate Professor of Education


Chester J. Nisteruk

Professor of Electrical and Computer Engineering


Goli Nossoni

Assistant Professor of Civil and Environmental Engineering


Nevzat Ozturk

Associate Professor of Electrical and Computer Engineering

B.S. 1973, M.S. 1974, Middle East Technical University; Ph.D. Hacettepe University. (1986)

Romeo Pascone

Professor of Electrical and Computer Engineering


George Prans

Associate Professor of Electrical and Computer Engineering
Carolyn E. Predmore
Professor of Marketing
B.A., University of Virginia; M.A., University of Maryland; M.B.A., Baruch College; Ph.D., City University of New York. (1989)

Philip Pritchard
Professor of Mechanical Engineering

Lisa Anne M. Rizopoulos
Associate Professor of Education

Janet L. Rovenpor
Professor of Management, Louis F. Capalbo Professor of Business
B.A., Tel Aviv University; M.B.A., Baruch College; Ph.M., Ph.D., City University of New York. (1991)

Yassir Samra
Assistant Professor of Management
B.E., M.S.Mgmt., M.S.Indust.Eng., New Jersey Institute of Technology; Ph.D., Stevens Institute of Technology. (2005)

Grishma Shah
Assistant Professor of Management
B.A., M.A, Ph.D., Rutgers University. (2008)

Zhe Shan
Assistant Professor of CIS
B.S., Nanjing University, China; M.Phil. City University of Hong Kong; Ph.D., The Pennsylvania State University. (2011)

Robert R. Sharp
Professor of Civil and Environmental Engineering

Patricia M. Sheridan
Assistant Professor of Law
B.A., Manhattan College; J.D., Fordham Law School. (1994)
Gordon Silverman  
Professor of Electrical and Computer Engineering  

Gwendolyn Tedeschi  
Assistant Professor of Economics  
B.A. Illinois Wesleyan University; M.S., Ph.D., University of Maryland, College Park. (2008)  

John F. Tomer  
Professor of Economics and Finance  
B.S., Ph.D., Rutgers University. (1983)  

Kudret Topyan  
Professor of Economics and Finance  
B.S., Middle East Technical University (Turkey); M.Phil., Ph.D., City University of New York. (1991)  

Thomas E. Twardowski  
Visiting Associate Professor of Chemical Engineering  

Mehmet Ulema  
Professor of Computer Information Systems, Chair of the Department  
B.S., M.S., Istanbul Technical University; M.S., Ph.D., Polytechnic University. (2002)  

Evriclea Voudouri-Maniati  
Associate Professor of Electrical and Computer Engineering  

Marc E. Waldman  
Assistant Professor of Computer Information Systems  

Graham Walker  
Professor of Mechanical Engineering  
B.S. 1978, Strathclyde University; Ph.D. 1986, Southampton University. (1993)  

Jane-Chia Wang  
Assistant Professor of Economics and Finance  
B.A., National Tsing Hua Uni Taiwan; M.B.A., Baruch College; Ph.D., Rutgers University. (2005)
Timothy J. Ward

Dean, School of Engineering and Professor of Civil and Environmental Engineering


Gloria Wolpert

Associate Professor of Education

Adjunct Graduate Faculty

Michelle Anne Bell

Graduate Counseling


Jamie Bernstein

Education

B.S. 2000, SUNY Oneonta; M.S.E.D. (Special Education) 2002, Long Island University. (2007)

Christine Bleecker, Ed.D.

Graduate Counseling

B.S. Queens College; M.S. School Counseling, C.W. Post
Ed.D. Educational Leadership, University of Pa.

Neil Bussutil

Graduate Counseling

B.A. 1998, Fordham University; M.A. 2000, John Jay College of Criminal Justice; Ph.D. 2007, Yeshiva University

Tony Canale

Civil and Environmental Engineering


Michael E. Carey

Graduate Counseling


Marco Castaldi

Chemical Engineering


Sung Choi

Civil and Environmental Engineering

B.S. 1988, M.S. 1990, Inha University (Korea); Ph.D. 2006, University of Illinois at Urbana-Champaign. (2006).

Sr. Carol Ann Cimino, SSJ

Education

B.A. 1967, Nazareth College, M.S. 1972, Syracuse University, M.S. 1976, University of Rochester; Ed.D. 2004, St. Mary’s University.
Kathleen Costantini  
*Graduate Counseling*  
B.A. English, University of Detroit; M.A. English, Fordham University

Woodrow Crouch  
*Civil Engineering*  

Mary Cullen  
*Education*  

Angelo DeVito  
*Electrical and Computer Engineering*  

Robert Farrauto  
*Chemical Engineering*  

Paul Farrell, Psy.D.  
*Graduate Counseling*  
B.A. 1976, Manhattan College; M.S. 1978 School Psychology, City College of New York; Certificate of Advanced Graduate Study 1979, City College of New York; Ph.D. 1982, Yeshiva University

Barbara Ferraro  
*Education*  

Maria T. Fico  
*Education*  

Sr. Clare Fitzgerald, SSND  
*Graduate Education*  
B.A., College of Notre Dame, Md.; M.A. Catholic University; Ph.D. St. Louis University. (1994)

Donna Fitzsimmons
Graduate Education

Thomas Ganes
Graduate Counseling
M.A. Counseling Psychology, University of Santa Clara; Ed.D Counselor Education, Indiana University of Pennsylvania

Donald D. Gasparini
Graduate Counseling

Dawn Gavin
Education

Jennifer Gullesserian
Graduate Counseling
B.A., 1999, Pepperdine University
M.A., 2003, New York University
Ph.D. School Psychology, 2008, New York University

Michael Hager
Civil Engineering

James P. Harten
Education
A.B., Hunter College; M.S., Pace University; D.A., St. John's University. (2001)

Barbara Haynes
Graduate Counseling
B.A. 1979, Brown University; M.A. 1982, New York University; Ph.D. 1992, Teachers College, Columbia

Frank Henry
Mechanical Engineering

Helen C. Hollein
Chemical Engineering

Christine Ironside
Education

Julien M. Kern
Education

Vera Kishinevsky
Graduate Counseling

Jeremy Leeds
Graduate Counseling

Robert Lucas
Chemical Engineering

Walter Matystik
Mechanical Engineering, Civil and Environmental Engineering

Thomas N. McKee
Electrical and Computer Engineering

Susan P. Moor
Graduate Counseling

Peter Mutarelli
Education
Robert D. Mutch
*Civil and Environmental Engineering*

Frank Paliotta
*Education*
M.S. 1973, in Education (Social Sciences), Iona College; M.S. (Special Education) 1979, College of New Rochelle. (1998)

Suzanne Peda-Libfeld
*Education*

Frank Perricelli
*Civil Engineering*

Michael Potocznia
*Graduate Counseling*
B.S., M.A. Manhattan College; Ph.D. University of Miami. (2007)

Michael Powers
*Electrical and Computer Engineering, Mechanical Engineering*

Michael E. Quigley
*Education*

Kevin J. Rader
*Civil and Environmental Engineering*

Irene Rogan
*Education*

Luba Roytburd
*Graduate Counseling*
B.S. 1999, University of Maryland; Ph.D. 2005, University at Albany, State University of New York
Angela Rumaldo

Graduate Counseling


Paul Schmall

Civil Engineering

B.S. 1998, Bucknell University; Ph.D. in progress, University of Nottingham, U.K. (2009)

Marie Sheehan

Education

B.A. 1983, Hunter College; M.S. (Special Education) 1989, Manhattan College (2006)

Damian F. Sciano

Electrical and Computer Engineering


Peter K. Sweeney

Civil and Environmental Engineering


Ali Vadavarz

Mechanical Engineering


Milan Vatovec

Civil and Environmental Engineering


Antonio Vincitore

Chemical Engineering

B.S. 1992, Manhattan College; M.S. 1994, University of California, LA; Ph.D. 1998, University of California, LA. (2005)
Financial Services

Tuition and Fees
Student Financial Services-Policies and Procedures
Financial Assistance
Tuition and Fees

Tuition and Fees (2011-2012)*

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Regular Fees*

<table>
<thead>
<tr>
<th>Fee</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application for all students (nonrefundable)</td>
<td>$60.00</td>
</tr>
<tr>
<td>Registration per term (nonrefundable)</td>
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</tr>
<tr>
<td>Telecommunications Fee (per term) (For students enrolled for 5 or more credits)</td>
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<tr>
<td>Graduation Tuition per credit - School of Education</td>
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<tr>
<td>Graduation Tuition per credit - School of Business</td>
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<tr>
<td>Graduation Tuition per credit - School of Engineering</td>
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<tr>
<td>Tuition per credit for Undergraduate prerequisite courses</td>
<td>$780.00</td>
</tr>
<tr>
<td>Graduation Fee</td>
<td>$325.00</td>
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Back To Top

Special Fees*

<table>
<thead>
<tr>
<th>Fee</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Reactivation of Matriculation</td>
<td>$50.00</td>
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<tr>
<td>Returned check fee</td>
<td>$75.00</td>
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<tr>
<td>Off-campus courses transfer credit</td>
<td>$135.00</td>
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<tr>
<td>Deferral Fee</td>
<td>$100.00</td>
</tr>
<tr>
<td>Each transcript of record from Registrar</td>
<td>$5.00</td>
</tr>
<tr>
<td>Finance charge (per month on overdue balance)</td>
<td>1%</td>
</tr>
</tbody>
</table>

* Subject to change.

Students enrolled in any 5-year program as an undergraduate student should contact the Office of Student Financial Services for guidance on the correct terms and conditions of tuition and aid.
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

Only students who have satisfied their current account for the term will be eligible for online pre-registration for an 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. Students who register after the tuition deadline for a term or make adjustments which result in increased liability after the tuition deadline for a term must make payment to the College upon those transactions.

**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 and routed to the Office of Student Financial Services. 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 SFS Office in Miguel Hall, Room 100 or mailed. The College accepts MasterCard, Visa, Discover and American Express credit cards. Secure, online credit card payments and ACH automatic check or savings withdrawals may be processed by accessing Self Service http://self-service.manhattan.edu with the student id number and pin number.

**Registration/Payment 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 these students in early July for the fall term and by mid-December for the spring term. Follow-up invoices for outstanding balances will continue monthly thereafter. Payment in full must accompany a request for registration or be provided in advance for those students who have not pre-registered. No student will be permitted to enroll for an academic term until all outstanding accounts with the College have been satisfied. Enrollment for the term is not considered final and complete until the tuition account is satisfied.

**Monthly Budget Plan**

Manhattan College partners with Tuition Management Systems (TMS) to offer an annual 10-month installment plan (Fall & Spring only) for matriculated students enrolling at least part time. For more information, you can contact TMS at 800-343-0911 or www.afford.com (http://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.

Regular Student Deferment

Students who need additional time to secure tuition financing will have the opportunity to apply for a tuition deferment. If approved, a deferment can extend your tuition payment deadline by six 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 date will be listed in the signed and approved application.

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. The College reserves the right to request prepayment before allowing registration for future terms. In addition, students with an outstanding obligation to the College will also be barred from online account access via Self Service, receiving grade reports, parking decals, transcripts, and participating in commencement until all account balances have been paid.

Policy on Returned Checks

If for any reason a check does not clear for payment, a returned check fee 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. Personal checks will no longer be accepted as a payment option. The College will request that future payments be made in form of cash, credit card, certified bank check or money order. The College reserves the right to cancel or deny enrollment for a particular term due to payment with insufficient funds.

Refund and Liability Policy

Adds, Drops and Withdrawals from a course(s) or a semester’s enrollment must be processed by the program director and the office of the Registrar. No adds or drops of courses will be permitted after the second scheduled meeting of a course. After the second scheduled meeting, a student will receive a grade of W if he/she is not in
attendance and has not authorized action otherwise through the program director and the Registrar. In this case, a student is liable for the tuition in accordance with the schedule below.

A student who drops or withdraws from a course(s) must inform the program director and the office of the Registrar and fill out the appropriate paperwork. Teachers are not authorized to issue drop or withdrawal slips. 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.

Refund of Tuition/Liability

(not registration fee or other fees) will be made in accordance with the following schedule:

Drop from a course before the first scheduled class

Drop from a course before the second scheduled class

Withdrawal from a course before the third scheduled class (Drops not permitted)

Withdrawal from a course after the third scheduled class (Drops not permitted)

Withdrawal/Leave of Absence

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

Failure to attend classes and/or notification to the instructor does not constitute an official withdrawal. Furthermore, failure to make or complete payment does not constitute official withdrawal.

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.

Room and Board Liability

Charges will be prorated per calendar week up to 5 weeks, as authorized by the Office of Residential Life.
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.

Tuition Insurance Plan

An optional tuition insurance plan is offered by the College through A.W.G Dewar, Inc. Up to 100 percent of tuition and room and board (less aid) are refunded to a student by Dewar’s if a student withdraws from a term for medical reasons. Details of the plan are mailed to all enrolled students before the start of the Fall term. Arrangements to participate in the plan can be made directly with Dewar’s at www.collegerefund.com (http://www.collegerefund.com).

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.

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.

Adjustment of Federal Aid

Return of Title IV Federal Aid

When a student withdraws during a term, the amount of federal financial aid earned by the student is determined on a pro-rata basis up to the end of 60% completion point of a term. The amount of federal Title IV aid earned is based upon the period of enrollment completed. A percentage is computed by dividing the number of days completed (as of the date the student officially withdraws) by the total number of days in the term as determined by the Office of Student Financial Services. Scheduled breaks of more than four consecutive days are excluded. The percentage is then applied to the aid received to determine earned and unearned aid. If and when any aid is determined to be unearned, it must be returned to the appropriate financial aid program(s). Returns to aid programs must be made in the following order: Unsubsidized Federal Stafford Loan, Subsidized Federal Stafford Loan, Federal Perkins Loan, Federal PLUS Loan, Federal Pell Grant, Academic Competitiveness or SMART Grant, Federal SEOG, and NY State Grant. Once
a student has completed more than 60% of the term, the student is considered to have earned 100% of aid and no adjustment to aid is made.

**Refunds of Credit Balances** are subject to the review of the Office of Student Financial Services. Institutional awards can never be refunded to the student. Credit balances resulting from private scholarships, federal financial aid, and alternate loan programs are subject to specific guideline review and approval by a financial aid counselor and a student account representative. Refunds will be routed through the approval process when the credit amount actually exists on the student's account, when a request is made in person or in writing, and after the census date for each term (first week of each term, or the add/drop period). In the event of an overpayment of personal funds paid to the College by check, refunds will be subject to a ten day holding period while original funding is cleared by the bank. 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. **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

The office of Student Financial Services will assist in obtaining the maximum financial aid available to those who qualify. Since the majority of students enrolled in the graduate programs at Manhattan College are attending part-time, financial assistance is limited.

To be eligible for financial assistance, a student must be matriculated and attending at least 1/2 time (6 credits per semester). To be considered for financial aid, students must comply with the timely submission of the following:

**Free Application for Federal Student Assistance (FAFSA)** — our FAFSA code is 002758. The FAFSA form can be obtained from the office of Student Financial Services or by filing directly on the web at www.fafsa.gov (http://www.fafsa.gov). The FAFSA form should be filed as early as possible after January 1st for the academic year for which the student wishes to be considered for aid.

To assist the College in determining eligibility, a **Graduate Financial Aid Form** (http://manhattan.edu/sfs/forms/gradfinaid1112.pdf) is also required. At times, the student may also be required to submit copies of tax returns and other proofs as determined by the FAFSA verification indicator or at the discretion of the Director.

The Federal Student Aid Program performs a needs analysis service which computes the student/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, a room and board allowance, books, transportation and other miscellaneous costs. The office of Student Financial Services deducts the family contribution as determined by the FAFSA from the Total Cost of Attendance to arrive at an amount of family need. An online financial aid award letter will be sent to advise students of eligible aid types. Typical financial awards might include:

**Subsidized Federal Direct Stafford Student Loan**: a matriculated graduate student may borrow up to $8,500 per year depending on need as determined by the FAFSA. Interest and repayment begin six months after graduation or after six months of failure to enroll at least part-time.

**Unsubsidized Federal Direct Stafford Student Loan**: a matriculated graduate student may borrow up to $12,000 per year depending on need as determined by the FAFSA. Under this program, borrowers are responsible for interest that accrues while attending school.

**Graduate PLUS Loans**: a matriculated graduate student is eligible to borrow under this additional program to meet the costs of attendance if they have exhausted their Federal Direct Stafford annual limit or aggregate limit. Students are advised to meet with a financial aid counselor for a review of eligibility.

*Note: Maximum eligibility for these federal loans is $20,500 per academic year. However, the loan amount may be limited to cover only the cost of attendance as determined by the guidelines above. First-time borrowers at Manhattan College must submit a Master Promissory Note (MPN) and complete Online Entrance Interview Counseling. Links are available at www.sfs.manhattan.edu.*
Federal Teacher Education Assistance for College and Higher Education (TEACH Grant): The TEACH Grant is a federal program that strives to encourage teachers into high-need teaching areas in K-12 low-income schools. It allows for a grant (not need-based) of up to $4,000 per year for students in qualifying undergraduate and graduate programs in exchange for service as full-time highly-qualified teachers in a high-need field within a low-income school upon graduation. If the teaching service years are not fulfilled within eight years of graduating or leaving the qualifying program, the grant is converted into a Federal Direct Unsubsidized loan with interest, and must be repaid in full. Teachers are responsible for gaining employment within these parameters by themselves. No formal assistance is provided by the College. To be eligible, students must be U.S. citizens or eligible non-citizens, have a documented score of at least the 75th percentile on any section of the SAT or ACT or have an overall GPA of at least 3.25, annually complete a FAFSA and Agreement to Serve (ATS) and entrance counseling, and enroll in a teacher certification program in one of the following areas offered at Manhattan: Foreign languages, Mathematics, Science (grades 5-9 and 7-12), Special Education, NYC teachers only for English (grades 5-9 and 7-12), and Physical Education. More information is available on the Student Financial Services website.

Federal Work Study (FWS): This program is extended to students who have remaining financial need after all other offered aid has been applied. FWS is not mandatory even though it may appear on the award letter. This program is funded by the federal government and offered awards are estimated on the award letter as a placeholder for actual earnings from hours worked. Students will be given guidance in seeking work opportunities both on and off-campus (community service programs). Hourly wage rates begin at $7.25 per hour and increase in fifty cent increments as students continue employment each subsequent year. Community service positions are offered a higher pay rate to help offset minor transportation costs. A student may work up to 20 hours per week while classes are in session and up to 35 hours per week during vacation periods. Students must complete the Free Application for Federal Student Aid (FAFSA) along with a college application and employment forms. Department supervisors hire qualified students and collect timesheets for a monthly student payroll. Students can apply for direct deposit with the Payroll office or receive a paycheck. FWS funds are not credited to the student account. Students who are not eligible for FWS will be eligible for the college’s Campus Employment Program.

Private Education Loans

Private or Alternative Loans (http://manhattan.edu/sfs/alternative_loans/index.shtml) are offered by lending institutions as additional sources of funds for higher education. Students are encouraged to exhaust all federal aid options before resorting to a private loan. Therefore, the college highly encourages a FAFSA application. The student will be the loan applicant and apply online directly with a lender. To determine the best lender, students might consider their creditworthiness, co-signer requirements and creditworthiness, interest rates, loan fees, loan limits, repayment period, repayment and deferment options, grace period offered and the general client service or reputation of the lender. For more information, please contact the lender. Manhattan College does not recommend specific lenders nor do we endorse one lender over the other, The College will provide general information and disclosure information for lenders that MC students have used in the past. Visit the Student Financial Services website for current information.
Code of Conduct Policy: Manhattan College enforces a code of conduct policy (http://manhattan.edu/sfs/Code%20of%20Conduct.pdf) for all employees who are involved with the administration of federal student aid. The purpose of the policy is to prohibit conflicts of interest in situations involving student financial aid and to establish standards of conduct for employees with responsibility for student financial aid. Visit the Student Financial Services website for current information.

Academic Progress and Program Pursuit for Federal Loans and Work Study Programs

As a graduate student you must meet, at minimum, the following satisfactory progress requirements if you are the recipient of any of these federal or institutional aid programs:

Federal Work Study
Federal Perkins Loan
Federal Direct Stafford Loan
Federal Direct Graduate PLUS Loan for Graduate 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 financial assistance. The standards provide that a student must complete two-thirds of all coursework attempted in each term.

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 academic standing) 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 3.0 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.

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 the degree limit time. To remain eligible for financial aid, students must earn at least 67% of total cumulative hours attempted.

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 36 credit hours for graduation are eligible for financial aid during the first 54 attempted credit hours. All attempted hours are counted, including transfer hours, whether or not financial aid was received, or the course work was successfully completed.

SAP Reviews: At the end of the each semester, a 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.

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 to process a Satisfactory Academic Progress (SAP) Appeal.

Endowed and Special Category Scholarships

Eder Associates Scholarship

Founded by Eder Associates, the scholarship provides tuition assistance to a financially needy graduate student with an outstanding academic record who is seeking a master’s degree in the Graduate Environmental Engineering Program.

The HydroQual, Inc., Scholarship

Founded in 1991 by HydroQual, Inc., to provide tuition assistance to students accepted for matriculation in the Graduate Environmental Engineering Program.

The Hazen and Sawyer Scholarship

In honor of C. Richard Walter ’50. Founded in 1990 by Hazen and Sawyer, P.C. upon the occasion of C. Richard Walter’s retirement as president and chair of Hazen and Sawyer. This scholarship will provide tuition assistance to graduate students accepted for matriculation in the Graduate Environmental Engineering Program.

Awards

The Fitzpatrick Family Medal

The Fitzpatrick Family Medal is awarded to a student from the Graduate School of Education who exemplifies the Lasallian tradition of academic excellence and service to others.
The Frank Derbenwick Award

This award is given in recognition of superior performance in the Chemical Engineering Graduate Program in memory of Chemical Engineering Professor Frank Derbenwick.

The James Strecansky ’62/Air Products Award

This award is given to a graduate student for outstanding service to the Chemical Engineering Department.

The Robert Harris ’61 Memorial Award

This award is presented to an outstanding foreign national enrolled in the Chemical Engineering Graduate Program.

The Sigma Xi Medal

This award is given to a graduate student for outstanding research in science.

The Award for Excellence in the Graduate Study of Environmental Engineering

This award is presented to a graduate student for excellence in Environmental Engineering and Science.
Graduate Services

The College Bookstore is located on the first floor of the Leo Engineering Building. Textbooks and auxiliary materials may be obtained there.

Health Services is located on the first floor of Alumni Hall. A full-time Nurse Practitioner and part-time college Physicians are available to address student health concerns.

An Accidents and Sickness Insurance Plan is available to students of Manhattan College. Students from foreign countries are especially urged to participate in this plan. Information is available at the office of the Vice President of Finance, 3rd floor of Memorial Hall.

Available to students is the Center for Career Development; personnel will assist students seeking employment. The office is on the fifth floor of Miguel Hall.

Manhattan College has a Counseling Center located on the fifth floor of Miguel Hall. Registered Manhattan College students may avail themselves of the services offered by the Center academic and psychological counseling, consultation and referral.

Parking permits may be obtained from the Director of Security whose office is on the first floor of Jasper Hall.

The Campus Ministry has an office on the second floor of Miguel Hall. All Manhattan College students may receive religious counseling through the Campus Ministry.

The International Student Advisor is available for all nonacademic advice and has an office on the second floor of Miguel Hall, Room 207A.

Library

The Mary Alice and Tom O’Malley Library provides support for the instructional programs of the college and is available to students, faculty, and staff, and contains approximately 200,000 print volumes, over 98,000 ebooks, and access to over 26,000 journals. Books and media are listed in JASPERcat, our online catalog. Through the Manhattan College Library website, users obtain access to JASPERcat and to multiple searchable databases that include citations and full-text of journals, books and reference materials. Off-site access to the catalogs and special databases is available to all registered students.

Students and faculty of Manhattan College can access the library resources of New York City and Westchester County by utilizing the interlibrary loan and on-site use arrangements of WALDO and METRO, our local library networks.

The 80,000 square foot O’Malley Library includes more than 100 computer workstations and network connectivity throughout the building as well as media services and teleconferencing. Students can study in various settings including group study rooms. An Internet Cafe is located outside the main library entrance. Reference librarians are available to provide information assistance on a scheduled basis and by appointment. The librarians also teach library research classes to graduate and undergraduate students.

During designated times of the school year, all or parts of the library will be open 24 hours a day. A schedule of hours is posted at www.manhattan.edu/library.

A Manhattan College I.D. card is required for entrance. For more information about library hours and services, please call (718) 862-7166.
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 wired and wireless computing and information services to campus laboratories, classrooms, and offices, as well as to student residence halls. Twelve microcomputer laboratories are located on the Manhattan College campus in the Research and Learning Center, DeLaSalle Hall, Miguel Hall and O'Malley Library. These laboratories serve all schools of the College. They support approximately 350 Pentium IV based microcomputers running under Microsoft Windows XP and Red Hat LINUX.

All campus locations are connected via a multi-gigabit backbone network. JasperNet provides many network based applications and services including online courses and web based storage as well as E-mail, Internet and World Wide Web access via TCP/IP, and laser printing in the laboratories. A wide range of software is available including math and statistical packages (Maple, MathCad, MatLab, SPSS, Excel), compilers (C++, Visual Basic, Visual J++), databases (Access, SQL), word processors (MS Word), presentation graphics (PowerPoint), multimedia authoring (Macromedia Director), 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 via the project’s Web pages: www.manhattan.edu/resnet/.

A dedicated Web Server for the College – http://www.manhattan.edu – is maintained by the Computer Center and supports over fifteen thousand hypertext pages of information including online catalogs, handbooks, and policies. Some faculty members maintain web pages for their courses on the server supported by a separate file server to facilitate the posting of online courseware. The Computer Center also provides on-line support, documentation, and other services via their web site: www.manhattan.edu/compcent/.

Computing laboratories are equipped for digital overhead projection and many are used as hands-on classrooms. Portable microcomputers with projection capabilities are used by instructors for demonstrations purposes in other classrooms throughout the campus which are linked to JasperNet.

Computer Laboratory Hours:

Research & Learning Center

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<td>Monday - Friday</td>
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<tr>
<td>Weekends</td>
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De La Salle CIS Lab

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<tr>
<td>Weekends</td>
<td>10:00 a.m. - 6:00 p.m.</td>
</tr>
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</table>

Security

The Security Department is charged with the responsibility of enforcing all College security regulations, including the supervision of all campus parking facilities. There are 45 officers who conduct foot and vehicle patrols on the campus areas 24 hours a day. Being a component of the Student Life Division, the Security Department actively supports the stated mission of the College and accepts its responsibility to employ security measures to ensure that our students enjoy their time at Manhattan College in safety and well being.

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

**2010**

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<th>OFFENSE</th>
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<tr>
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<tr>
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**Arrests**

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<th>Residence Halls</th>
<th>Public Property</th>
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<tbody>
<tr>
<td>Drug Abuse Violations</td>
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<td>1</td>
<td>0</td>
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<tr>
<td>Liquor Law Violations</td>
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<td>Residence Halls</td>
<td>Public Property</td>
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<tr>
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**Disciplinary Actions/Referrals**

<table>
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<th>OFFENSE</th>
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<th>Residence Halls</th>
<th>Public Property</th>
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<tbody>
<tr>
<td>Drug Abuse Violations</td>
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**2009**

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<tbody>
<tr>
<td>Aggravated Assault</td>
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<td>Arson</td>
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<td>Burglary</td>
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<tr>
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<td>0</td>
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<td>Motor Vehicle Theft</td>
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<td>Robbery</td>
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<td>Sex Offenses (Non-Forcible)</td>
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**Arrests**

<table>
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<th>Public Property</th>
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<tbody>
<tr>
<td>Drug Abuse Violations</td>
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### Disciplinary Actions/Referrals

<table>
<thead>
<tr>
<th>OFFENSE</th>
<th>On Campus</th>
<th>Residence Halls</th>
<th>Public Property</th>
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<tbody>
<tr>
<td>Drug Abuse Violations</td>
<td>32</td>
<td>29</td>
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<tr>
<td>Liquor Law Violations</td>
<td>290</td>
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<tr>
<td>Weapon Possession</td>
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* On Campus total includes Residence Hall incidents.
# Telephone Numbers

<table>
<thead>
<tr>
<th>Department</th>
<th>Phone</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Provost</td>
<td>(718) 862-7304</td>
<td>William C. Clyde, Ph.D.</td>
</tr>
<tr>
<td>Graduate Admissions and Information</td>
<td>(718) 862-7325</td>
<td>William J. Bisset, Jr.</td>
</tr>
<tr>
<td>Dean of Business</td>
<td>(718) 862-7440</td>
<td>Salwa Ammar, Ph.D.</td>
</tr>
<tr>
<td>Dean of Education</td>
<td>(718) 862-7374</td>
<td>William Merriman, Ph.D.</td>
</tr>
<tr>
<td>Dean of Engineering</td>
<td>(718) 862-7307</td>
<td>Timothy J. Ward, Ph.D., P.E.</td>
</tr>
</tbody>
</table>

# Directors of Graduate Programs

<table>
<thead>
<tr>
<th>Department</th>
<th>Phone</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBA</td>
<td>(718) 862-7872</td>
<td>Marc Waldman, Ph. D</td>
</tr>
<tr>
<td>Counseling Programs</td>
<td>(718) 862-7497</td>
<td>Corine Fitzpatrick, Ph.D.</td>
</tr>
<tr>
<td>Education</td>
<td>(718) 862-7969</td>
<td>Elizabeth M. Kosky, Ed.D</td>
</tr>
<tr>
<td>School Building Leadership</td>
<td>(718) 862-7473</td>
<td>Sr. Remigia Kushner, Ph.D.</td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td>(718) 862-7185</td>
<td>Ann Marie Flynn, Ph.D.</td>
</tr>
<tr>
<td>Civil Engineering</td>
<td>(718) 862-7172</td>
<td>Moujalli Hourani, D.Sc</td>
</tr>
<tr>
<td>Electrical &amp; Computer Engineering</td>
<td>(718) 862-7153</td>
<td>Gordon Silverman, Ph.D.</td>
</tr>
<tr>
<td>Environmental Engineering</td>
<td>(718) 862-7169</td>
<td>Robert Sharp, Ph.D.</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>(718) 862-7927</td>
<td>Bahman Litkouhi, Ph.D.</td>
</tr>
</tbody>
</table>

# Service Offices

<table>
<thead>
<tr>
<th>Office</th>
<th>Phone</th>
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</thead>
<tbody>
<tr>
<td>Admissions and Information</td>
<td>(718) 862-7325</td>
</tr>
<tr>
<td>Office of Student Financial Services</td>
<td>(718) 862-7100</td>
</tr>
<tr>
<td>Office of the Registrar</td>
<td>(718) 862-7914</td>
</tr>
<tr>
<td>Office of Financial Assistance</td>
<td>(718) 862-7381</td>
</tr>
<tr>
<td>Office of Commencement and Special Events</td>
<td>(718) 862-7918</td>
</tr>
<tr>
<td>International Student Advisor</td>
<td>(718) 862-7213</td>
</tr>
<tr>
<td>Director of Residence</td>
<td>(718) 862-7438</td>
</tr>
<tr>
<td>Bookstore</td>
<td>(718) 862-7249</td>
</tr>
</tbody>
</table>

# Location
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).

Campus Map (http://www.manhattan.edu/about/2009_MC_Map_Small.pdf)

Directions to Manhattan College

By Car

From Long Island

Robert F. Kennedy Bridge (Triborough Bridge) (from South)
Follow signs to Major Deegan Expressway North (I-87), exit at Van Cortlandt Park South, bear right off ramp and bear right onto Broadway. At second traffic light, turn left and then left again onto Manhattan College Parkway. Proceed up hill to main gate on right.

Whitestone or Throgs Neck Bridge (from East)
To Cross Bronx Expressway (I-95), to Major Deegan Expressway (I-87) North, exit at Van Cortlandt Park South, bear right off ramp and bear right onto Broadway. At second traffic light, turn left and then left again onto Manhattan College Parkway. Proceed up hill to main gate on right.

From Upstate

Saw Mill River Parkway/Henry Hudson Parkway

Traveling North: Exit at 239th Street. Go to stop sign, cross intersection and bear right onto Manhattan College Parkway. Proceed down hill to main gate on left.

Traveling South: Exit at 246th Street. Turn left at first traffic light, turn right onto Fieldston Road at circle and then turn left onto Manhattan College Parkway. Proceed down hill to main gate on left.
New York State Thruway (I-87) (from North)

Thruway South (I-87) becomes the Major Deegan Expressway. Exit at Van Cortlandt Park South, turn right off ramp and bear right onto Broadway. At second traffic light, turn left and then left again onto Manhattan College Parkway. Proceed up hill to main gate on right.

From New Jersey

George Washington Bridge (from West)

New Jersey Turnpike or Route 80 to George Washington Bridge. Follow signs to Henry Hudson Parkway North to 239th Street Exit (no commercial vehicles). At stop sign, proceed straight across intersection (monument on left), pass traffic light and bear right at fork onto Manhattan College Parkway. Proceed down hill to main gate on left.

From New York City

F.D.R. Drive (from South)

F.D.R. Drive to Major Deegan Expressway North (I-87). Exit at Van Cortlandt Park South, bear right off ramp and bear right onto Broadway. At second traffic light, turn left and then left again onto Manhattan College Parkway. Proceed up hill to main gate on right.

West Side Highway (from South)

West Side Highway to Henry Hudson Parkway North to West 239th Street Exit. At stop sign, proceed straight across intersection (monument on left), pass traffic light and bear right at fork onto Manhattan College Parkway. Proceed down hill to main gate on left.

From New England

New England Thruway West to Cross Westchester Expressway, then onto New York State Thruway South. Exit at Van Cortlandt Park South, turn right off ramp and bear right onto Broadway. At second traffic light, turn left and then left again onto Manhattan College Parkway. Proceed up hill to main gate on right.
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