University College: Arts • Sciences • Professional Studies

Majors

Allied Health Technologies (B.S.A.H.T.)
Concentration: health science

Art (B.A.)
Concentrations: arts management, computer art and design, graphic art and design, painting/drawing
Minors: computer animation, computer graphics, digital media for advertising, digital tools for social media, fine art techniques, printmaking

Biochemistry (B.S.)

Biology (B.S.)
Concentrations: biotechnology, chemistry, environmental science, human physiology
Minors: biology, environmental science

Chemistry (B.S.)
Concentration: prepharmacy program

Civil Engineering (B.S.C.E.)

Civil Engineering Technology (B.S.Civ.E.T.)

Clinical Laboratory Sciences (B.S.C.L.S.)
Concentrations: cytotechnology, medical laboratory sciences

Communication (B.A.)
Concentrations: broadcasting, convergent journalism, radio management, TV/digital editing and production
Minors: advertising, communication, convergent journalism, speech, sports media studies

Computer Science (B.S.)
Concentrations: cybersecurity and information assurance, database management, game and mobile application development, information security administration
Minor: computer science

Construction Engineering Technology (B.S.Con.E.T.)

Criminal Justice (B.A.)
Minors: computer forensics, criminal justice, legal studies, social justice advocacy

Electrical Engineering (B.S.E.E.)
Minor: electrical engineering

Electrical Engineering Technology (B.S.E.E.T.)
Minor: electrical engineering technology

English Language and Literature (B.A.)
Minors: creative writing, English language and literature

Fine Arts (B.A.)
Minor: theater

Health Information Management (B.S.H.I.M.)

Health Studies (B.S.H.S.)
Concentrations (Tracks): general, science

History (B.A.)
Minor: history

Humanities (B.A.)
Concentrations: American studies, British studies, digital humanities, global and cultural studies, liberal studies, sustainability
Minors: American studies, British studies, digital humanities, global and cultural studies, sustainability

Information Technology (B.S.)
Concentrations: network and system administration, security and forensics, web-development technology
Minors: computer forensics, information technology, website design and development
Certificate: website design and development

International Affairs (B.A.)
Minor: international affairs

Marine Biology (B.S.)
Concentration: environmental science
Minor: marine biology

Mathematics (B.A.)
Minor: specific discipline

Mathematics (B.S.)
Concentrations: applied mathematics, pharmaceutical biostatistics, pure mathematics
Minor: mathematics

Mechanical Engineering (B.S.M.E.)

Mechanical Engineering Technology (B.S.M.E.T.)
Minor: mechanical engineering technology

Medical Imaging Sciences (B.S.M.I.S.)
Concentrations: cardiac sonography, diagnostic medical sonography, nuclear medicine, vascular sonography

Medical Technology (B.S.)

Nursing (B.S.N.)

Political Science (B.A.)
Concentrations: American government and politics, comparative government and politics, international relations, law and political theory
Minors: legal studies, political science

Psychology (B.A.)
Concentrations: clinical social work, consumer psychology, forensic psychology, mental health, organizational behavior/human resources
Minors: clinical social work, forensic psychology, psychology

Radiography (A.S.)
Certificate: radiography

Radiologic Technology (B.S.)

Science (B.S.)
Minor: science

Spanish Language and Culture (B.A)
Minor: Spanish language and culture

Multidisciplinary Minors
African studies, American studies, British studies, computer forensics, creative writing, digital humanities, English language and literature, global and cultural studies, legal studies, philosophy, religion and society, romance languages, sports media studies, sustainability

Education/Teacher Certification
(see QUEST Program)

Liberal Arts • Professional Studies

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

Metropolitan Campus, Teaneck, New Jersey, and Vancouver Campus, British Columbia, Canada

Patti A. Mills
Dean

Mission

At University College: Arts • Sciences • Professional Studies the commitment is to educating students for the world.

University College emphasizes professionally accredited and career-oriented programs that prepare future leaders to work effectively in a global environment regardless of profession. Its wide array of programs is strongly grounded in the liberal arts, recognizing that professionals in all fields require a multidisciplinary and multicultural perspective to be successful. It also stresses experiential and field-based learning through internships, student-directed research, cooperative education and community service that supplement academic instruction, enhance career-related experiences and develop students' social and moral identities as productive citizens.

Setting

The mission of University College is facilitated by its location in northern New Jersey's Bergen County with proximity and ease of access to New York City. Courses and curricula incorporate the unique commercial, scientific and cultural resources of the metropolitan area to create a learning laboratory of exceptional diversity and richness. The resources of this vital cosmopolitan area contribute to all aspects of University College activity, yet at the same time the College maintains a suburban campus atmosphere.

Programs

University College offers a wide range of undergraduate and master's degree programs in such areas as psychology, criminal justice, education, the natural sciences, nursing, engineering and technology, computer science, media and communication and the humanities. Many of its schools offer accelerated and combined undergraduate/graduate degree programs as well as special areas of concentration and minors described in the appropriate sections by school.

Several accelerated programs are available for exceptional students — **Baccalaureate/Master**: Bachelor of Arts/Master of Public Administration (page 205); Bachelor of Arts or Science/Master of Arts in Teaching (page 206); Bachelor of Arts in communication/Master of Arts in media and professional communication (page 209); Bachelor of Arts in criminal justice/Master of Arts in criminal justice (page 211); Bachelor of Arts in political science/Master of Public Administration (page 212); Bachelor of Arts in psychology/Master of Arts in forensic psychology (page 213); Bachelor of Arts in psychology/Master of Arts in general/theoretical psychology (page 214); Bachelor of Arts/Master of Social Work with New York University (page 216); Bachelor of Science in biochemistry/Master of Science in applied clinical nutrition with School of Applied Clinical Nutrition, New York Chiropractic College (page 219); Bachelor of Science in biochemistry/Master of Science in cosmetic science (page 221); Bachelor of Science in biochemistry/Master of Science in chemistry with a concentration in pharmaceutical chemistry (page 220); Bachelor of Science in biology/Master of Science in acupuncture and oriental medicine with Finger Lakes School of Acupuncture and Oriental Medicine, New York Chiropractic College (page 222); Bachelor of Science in chemistry/Master of Science in cosmetic science (page 227); Bachelor of Science in chemistry/Master of Science in chemistry with a concentration in pharmaceutical chemistry (page 225); Bachelor of Science in biology/Master of Science in biology (page 224); Bachelor of Science in computer science/Master of Science in computer science (page 228); Bachelor of Science in computer science/Master of Science in management information systems (page 229); Bachelor of Science in Electrical Engineering/Master of Science in computer engineering (page 230); Bachelor of Science in Electrical Engineering/Master of Science in Electrical Engineering (page 231); Bachelor of Science in information technology/Master of Science in computer science (page 234).

Baccalaureate/Doctorate: Bachelor of Science in biology/Doctor of Dental Medicine with Rutgers School of Dental Medicine (page 243); Bachelor of Science in biochemistry or biology or chemistry/Doctor of Dental Medicine with Lake Erie School of Osteopathic Medicine School of Dental Medicine (page 242); Bachelor of Science in biology/Doctor of Physical Therapy with Rutgers School of Health Related Professions, Newark (page 254); Bachelor of Science in biology/Medical Doctor with Poznan University of Medical Sciences (page 244); Bachelor of Science/Medical Doctor with Ross University, School of Medicine (page 246); Bachelor of Science/Medical Doctor with Universidad Autónoma de Guadalajara (page 248); Bachelor of Science in biology/Doctor of Chiropractic with New York Chiropractic College, Life Chiropractic College West Logan Chiropractic College, Palmer College of Chiropractic and Western States Chiropractic College (page 241); Bachelor of Science in biochemistry or biology or chemistry/Doctor of Pharmacy with FDU School of Pharmacy and Health Sciences (pages 235, 250, 259); Bachelor of Science in biochemistry or chemistry/Doctor of Pharmacy with Bernard J. Dunn School of Pharmacy, Shenandoah University (page 239); Bachelor of Science in biology/Doctor of Osteopathy with Lake Erie College of Osteopathic Medicine (page 248); Bachelor of Science in biology/Doctor of Podiatric Medicine with New York College of Podiatric Medicine (page 255); Bachelor of Science in biology/Doctor of Veterinary Medicine with Ross University, School of Veterinary Medicine (page 257).

Liberal Arts • Professional Studies Curricular Requirements

The following requirements (see next page) are for those students wishing to major in art (B.A.), communication (B.A.), criminal justice (B.A.), English language and literature (B.A.), fine arts (B.A.), history (B.A.), humanities (B.A.), international affairs (B.A.), mathematics (B.A.), political science (B.A.), psychology (B.A.) or Spanish language and culture (B.A.).

Candidates for the Bachelor of Arts degree must complete a minimum of 120 credits of course work. These include liberal arts and science University requirements, core course work, major courses and electives that may be chosen to meet requirements for a secondary area of concentration. See major listings for requirements. Students should confer with faculty advisers in their major field of study so as to select core courses appropriate to the major.

Science and Engineering • Professional Studies

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

General Education Requirements (58 credits)

I. College Competencies (27 credits)

	Credits
Written Communication Courses (ENWR1101/ENWR1102)	6
Writing-intensive Courses in the Major	6
Oral Communication Course	3
Quantitative Analysis Course	3
Ethical and Moral Analysis Course	3
Scientific Analysis Courses	6

II. Liberal Arts Distribution (18 credits)

Language and Culture Courses	6
Social and Behavioral Science Courses	6
Art and Humanities Courses	6

III. University Requirements (8 credits)

UNIV1001 Transitioning to University Life	1
UNIV1002 Preparing for Professional Life	1
UNIV2001 Cross-cultural Perspectives	3
UNIV2002 Global Issues	3

General Education Requirements (58 credits)

I. College Competencies (27 credits)

A. Written Communication (12 credits)
This requirement consists of 3 credits in ENWR1101 Academic Writing, 3 credits in ENWR1102 Academic Research and Writing and 6 writing-intensive credits in the major or other writing-intensive courses designated by the major program.

B. Oral Communication (3 credits)
Requirements consist of a 3-credit course that is substantially concerned with public speaking and oral presentations, typically a course in Speech.

C. Quantitative Analysis (3 credits)
Requirements consist of a 3-credit course that is substantially concerned with mathematics and statistics with application to everyday problems.

D. Ethical and Moral Analysis (3 credits)
Requirements consist of a 3-credit course that is substantially concerned with ethical theories and questions. This course could be in philosophy or a course within a major program.

E. Scientific Analysis (6 credits)
Requirements consist of a minimum of 6 credits of laboratory science.

II. Liberal Arts Distribution (18 credits)

A. Language and Culture[1] (6 credits)
This requirement can be satisfied by one of four options: traditional language course listings under "Language and Culture Studies," language-based study abroad or the successful completion of the EPS course for non-native English speakers.

B. Social and Behavioral Sciences (6 credits)
This requirement can be satisfied by 6 credits of course work in communication, criminal justice, economics, political science, psychology or sociology.

C. Art and Humanities (6 credits)
This requirement can be satisfied by 6 credits of course work in art (visual or performing), English literature, history, humanities, philosophy or religion.

III. University Requirements (8 Credits)

UNIV1001 Transitioning to University Life, UNIV1002 Preparing for Professional Life, UNIV2001 Cross-cultural Perspectives and UNIV2002 Global Issues.

[1]A student may satisfy this liberal arts requirement in four ways:

• Foreign language studies: students can complete one year of foreign-language instruction. Students with less than two years of high school language study completed within the last four years are required to earn 6 credits of language at the elementary level. Students with two or three years of high school language study completed within the last four years are required to earn 6 credits of that language at the intermediate level. Students with four or more years of language study within the last four years must complete 6 credits of that language at the advanced level. Students will be placed at an appropriate level of language instruction based on years of high school study; the student can earn only elective credits for lower-level courses.For example, if the student is required to complete 6 credits at the intermediate level but is placed in the second elementary-level course, the student will earn only elective credits for this lower-level course.

• Language and culture courses: Each course listed in the Undergraduate Studies Bulletin *as "Language and Cultural Studies" will fulfill 3 credits toward this requirement.*

• English for Professional Success: International students can partially fulfill this requirement by the successful completion of the English for Professional Success (EPS) requirement.

• Study abroad: Students can fulfill this requirement by taking 6 credits of an immersion course in any language followed by a University-approved intercultural travel experience.

A list of approved courses is available in the school offices, the campus Academic Advisement office and the office of the college dean.

It is strongly recommended that the College's General Education Requirements should be completed within the first two years for students pursuing the Bachelor of Arts degree.

The Major

Each student must officially declare a major before entering the sixth semester. The courses in a major vary from a minimum of 30 credits above the introductory level to not more than 42. Details and explanations of the various Bachelor of Arts major programs are set out in the following pages. Dual majors are permitted providing requirements are met.

Mandatory Minor

Students pursuing Bachelor of Arts degrees are required to complete a minor or second major of at least 15 credits in a specific discipline. Minors are specializations that supplement majors and contribute to general education in that they provide the student with an element of breadth. The requirements for minors and concentrations are provided in the section describing the major requirements.

Science and Engineering • Professional Studies Curricular Requirements

Candidates for all baccalaureate degrees must complete at least 120–131 credits of course work. Certain programs require more than 120 credits for the degree. See each major for specific requirements. No student in University College may receive credit for graduation for any mathematics course that is a prerequisite for the particular curriculum.

Science Programs

The University College offers programs leading to the Bachelor of Science degree in biochemistry, biology, chemistry, clinical laboratory sciences, computer science, health information management, information technology, marine biology, mathematics, medical imaging sciences, medical technology, nursing, radiologic technology and science. A prepharmacy program provides the first two years of instruction of the normal five-year B.S. degree in pharmacy. (See page 146.) Two programs

(seven- and eight-year) with Lake Erie College of Osteopathic Medicine lead to a B.S. in biology and a D.O. (doctor of osteopathy). A seven-year B.S. in biochemistry/biology/chemistry Pharm.D. joint program is offered with the FDU School of Pharmacy and Health Sciences. A seven-year B.S. in chemistry/biochemistry Pharm.D. joint program is offered with the Bernard J. Dunn School of Pharmacy, Shenandoah University. A seven-year joint program is offered with New York College of Podiatric Medicine leads to a B.S. in biology and a D.P.M. (doctor of podiatric medicine). A seven-year joint program with the Rutgers School of Dental Medicine leads to a B.S. in biology and a D.M.D. (doctor of dental medicine). An eight-year joint program with Lake Erie College of Osteopathic Medicine School of Dental Medicine leads to a B.S. in biochemistry or biology or chemistry and a D.M.D. (doctor of dental medicine). A seven-year B.S. in biology and a D.V.M. in veterinary medicine is offered with Ross University, St. Kitts. An eight-year B.S. in biology/Medical Doctor program is offered with Ross University School of Medicine, Commonwealth of Dominica. A seven-year B.S. in biology/Medical Doctor program is offered with Poznan University of Medical Sciences, Poland, and with Universidad Autónoma de Guadalajara, Mexico, and a B.S./Doctor of Chiropractic degree can be completed in six years, four months with selected Council on Chiropractic Education Colleges of Chiropractic. A B.S. in biology/Doctor of Physical Therapy (DPT) can be completed in six years with Rutgers School of Health Related Professions. (For more information on these programs, see pages 235–263.)

Engineering and Engineering Technology Programs

The following degree programs are offered: Bachelor of Science in Civil Engineering, Bachelor of Science in Civil Engineering Technology, Bachelor of Science in Construction Engineering Technology, Bachelor of Science in Electrical Engineering, Bachelor of Science in Electrical Engineering Technology and Bachelor of Science in Mechanical Engineering Technology.

Course Numbering System

0000 — Developmental Level: remedial or developmental courses intended to prepare students for entry into the curriculum or to remove a deficiency, no degree credit.

1000 — Freshman Level: a lower-division course having no formal prerequisites beyond admission into the curricula or intended for freshmen or lower-division students.

2000 — Sophomore Level: a lower-division course having a 1000-level prerequisite or intended for sophomores.

3000 — Junior Level: an upper-division course having a 2000-level prerequisite or intended for juniors or upper-division students.

4000 — Senior Level: an upper-division course or thesis having a 3000-level prerequisite or intended for seniors.

5000–9000 — Graduate Level: a graduate course.

Other College Options

Areas of Minor Study

Students must develop a second area of study to complement the major study. A minimum of 15 credits will be required. Areas of concentration may be chosen from among those offered as multidisciplinary minors or in departments/schools of the University College: Arts • Sciences • Professional Studies or other University colleges.

Electives

Adviser-approved electives may be chosen from regular courses offered in any of the baccalaureate programs of the other colleges or Wroxton College if prerequisites are met. Usually, elective courses are taken in the last two years. Courses that are used to explore major fields of interest also can be used as electives.

Independent Study

In accord with school criteria, students may take individual intensive study under the direction of a specific faculty member. Approvals of the instructor, appropriate school director(s) and College dean are required. A total of 6 credits of independent study toward completion of requirements for the degree is permitted; any exceptions must be approved by the school director and the College dean.

Prelaw

The minimum legal requirement for admission to a law school in New Jersey is the completion of three-fourths of a program leading to a bachelor's degree. Some law schools require the baccalaureate degree for admission.

The University confers a baccalaureate degree for three years of undergraduate study and one year of law school study on the conditions described in this bulletin under the "Prelaw Degree Option," page 273.

The Association of American Law Schools has drawn up a statement describing the best type of prelegal training. Although not specifying exact courses, it does emphasize three major areas for development:

1. comprehension and expression in words,
2. critical understanding of human institutions and values and
3. creative power in thinking.

The association further points out that these basic skills may be learned in any course where the instruction is excellent and the student extends himself or herself. The only negative suggestion is the avoidance of "law" courses on the undergraduate level, as this approach is not used in the education of lawyers.

Students should follow a well-designed program, choosing a major from among those offered. The program may include majors in criminal justice, English, history, languages, mathematics, political science, psychology and sciences. Courses in accounting, creative writing, government, logic and public speaking are recommended.

Advisement

A Preprofessional Advisement Center at the Metropolitan Campus helps students to prepare applications for professional schools.

The advisement center at the Metropolitan Campus and each of the schools in University College maintain detailed outlines of the various programs in the College. These serve as checklists of requirements, which aid students in monitoring their progress toward their degrees.

Education • Teacher Certification

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

Education: QUEST Five-year B.A. or B.S./M.A.T. Program (Teacher Certification)*

Courses leading to teacher certification are offered as a curriculum concentration in the QUEST five-year accelerated (B.A. or B.S./M.A.T.) program. (Also see pages 206–207.)

Students may select a QUEST program in general education (regular classroom teacher) at the P–3, elementary or secondary level. QUEST also offers the opportunity to select a dual certification program in elementary education (K–5) and Teacher of Students with Disabilities (TSD). Students desiring the dual certification program need to join QUEST in their freshman year.

Mission of the Peter Sammartino School of Education

The mission of the Peter Sammartino School of Education at Fairleigh Dickinson University is to foster a diverse community of effective, professional educators who are caring, competent, reflective, ethical leaders committed to advancing student learning and achievement, developing scholarship and promoting democratic ideals in our global society.

Approved Programs

Programs in teacher education are accredited for certification by the New Jersey Department of Education as meeting its standards.

QUEST Five-year Accelerated (B.A. or B.S./M.A.T.) Teacher Preparation Program

Students considering a career in teaching may be admitted to the QUEST (B.A. or B.S./M.A.T.) Teacher Preparation Program. QUEST is a combined degree program (see pages 206–207) which provides an opportunity to earn a bachelor's degree in a liberal arts/science major, teacher certification in early childhood, elementary or secondary education and a Master of Arts in Teaching (M.A.T.) degree in five years or less. Students may be enrolled in QUEST as freshmen following formal application and admittance to FDU based upon standard admissions requirements along with meeting School of Education and QUEST requirements. Students accepted to FDU in special programs must be referred to the School of Education through their program advisers and will be enrolled in QUEST subject to meeting QUEST program admissions standards. FDU students and admitted transfer students may be enrolled in QUEST in their sophomore or junior years subject to an interview with the School's QUEST adviser, a review of transcripts and meeting QUEST program admissions standards. The required minimum cumulative grade point ratio for enrollment in QUEST is 3.00 for entering sophomores and juniors. Students are expected to meet these minimum academic standards and the performance standards established for the QUEST program in order to remain in the program.

**Fairleigh Dickinson University's School of Education has a pass rate of 100 percent on the HEA-Title II reporting for the 2013–2014 academic year.*

Admission to and Matriculation into QUEST Program

Freshmen entering the QUEST program are required to have a high school grade point average of 3.00 or greater and a minimum of 1,000 on the SAT (combined verbal and mathematics) or a 21 composite on the ACT. Sophomores and juniors requesting admission to the QUEST program must have a college/university cumulative grade point ratio (CGPR) of 3.00 or greater. Students entering the QUEST program are not formally matriculated into QUEST until they have 60 credits and have met the following requirements:

- 60 earned credits;
- CGPR of 3.00 or greater; and
- Pass the new Praxis CORE Battery, which consists of three tests in basic skills as follows:

1. Core Academic Skills for Educators: Reading
2. Core Academic Skills for Educators: Writing
3. Core Academic Skills for Educators: Mathematics

Students are required to take the CORE Battery by the end of their sophomore year to continue in the QUEST program. Juniors seeking admission to QUEST must take the CORE Battery during their first semester in the program. All three exams must be passed to become matriculated. Students who do not pass all three exams may be restricted in taking education courses. Students may be exempted from the CORE Battery if they meet one of the following alternatives:

- SAT: 1,660 combined score (critical reading, mathematics and writing)
- ACT: 23.

Teacher Certification Requirements

At times, the New Jersey State Department of Education regulations change. Students are advised to check the New Jersey State Department of Education website <http://www.state.nj.us/education/> for current requirements.

In New Jersey, the State Department of Education grants approval for teacher certification based upon the following:

- a bachelor's degree from an accredited institution which includes 60 credits in liberal arts and science courses for elementary education, including at least 3 credits in physiology, biology or health;
- for middle-school candidates, a course in adolescent development and 15 or more credits in the content area for their certification (e.g., mathematics, English, etc.);
- for secondary candidates, a major in the subject area to be taught or 30 credits of a coherent sequence of courses in the subject area (e.g., mathematics, biology, etc.) where half of the courses are at an upper level (3000 and above);
- completion of appropriate education courses, field experiences and student teaching;
- full matriculation into the QUEST program as described above;
- a minimum cumulative grade point ratio (CGPR) of 3.00; and
- a passing score on the state-required Praxis II Test appropriate for the area of certification.

Students must major in liberal arts or a science. In New Jersey, a student cannot major in education. Individuals preparing for subject-area certification to teach at the secondary level (e.g., science, foreign languages, etc.) must major in the field they are planning to teach. Students interested in early childhood or elementary education may major in select liberal arts/science fields of interest or major in the humanities with a prescribed concentration of courses in a specific content area. Professional or "technical" majors (e.g., marketing, journalism, accounting, etc.) do not satisfy the state requirement for a B.A. or B.S. in a liberal arts/science specialization. Those individuals must present a transcript including 60 credits in the liberal arts or pure sciences in order to qualify for elementary certification.

Students seeking certification must complete the required courses of their liberal arts/science major, courses in "general

education" and specific courses in the behavioral sciences (sociology, anthropology or psychology) that are related to teaching and learning. Together these areas must total a minimum of 60 course credits. The total of 60 "general education" credits must be distributed among the following areas: mathematics, science, American and English literature, American history and American studies, non-Western studies, Western history, art history or music, philosophy, technology, foreign language and psychology.

Students majoring in psychology are required to take 15 or more credits in a content area (English, history, mathematics or science).

Those individuals desiring to teach on the middle-school level (5*, 6*, 7, 8) must qualify for elementary school certification with subject-matter specialization endorsement. In order to do so, the following requirements must be met, according to N.J.A.C. 6A:9–8.1:

1. Hold a Certificate of Eligibility (CE), Certificate of Eligibility with Advanced Standing (CEAS) or standard certificate;
2. Complete study in the characteristics of children and young adolescents (adolescent psychology or developmental psychology);
3. Pass the appropriate state test in content-area specialization for middle school;
4. Complete a prescribed coherent sequence of courses in, but not limited to, one of the following specializations: 15 credits in a single CCCS subject field (mathematics, English, history, etc.);

Prospective teachers in the QUEST (B.A. or B.S./M.A.T.) program follow the *traditional route* to teacher certification, which requires the candidate: to hold a bachelor's degree from an accredited college or university; to have completed at least 30 credit hours in courses appropriate to the instructional field of certification; and to pass the state-required Praxis II Test. In the traditional route, the professional development requirement is met by completing an approved teacher-education program (which includes course work in education and three levels of practical [field-based] experience — initial exposure in the classroom followed by a more intensive field experience and culminating with a supervised student teaching experience). All candidates starting clinical practice (student teaching) in academic year 2018–2019 or thereafter must complete at least 50 hours of clinical experiences (field experiences) in a preschool, elementary, middle and/or secondary school setting prior to clinical practice. Clinical practice will occur over a two-semester period within a single school with at least 175 hours prior to the final, full-time semester of student teaching. If students have met all of the requirements *and* have completed an approved student-teaching experience, they may be recommended for a "Certificate of Eligibility with Advanced Standing," which qualifies them to be hired as first-year teachers with a provisional certificate to satisfy the state's "Induction Year" requirement for standard certification. The hiring school district is required: 1) to provide the new teacher with a mentor and special on-the-job support and 2) to evaluate the new teacher's performance and make a recommendation on the issuance (or nonissuance) of a standard certificate at the end of the year.

Regarding teacher certification in other states, New Jersey has "reciprocity" with a number of other states and the District of Columbia. Persons seeking employment in another state should write to that state's office of teacher certification for information.

**This requirement does not apply to those who teach in a self-contained classroom.*

Programs in Language, Culture and Professional Advancement (PLCPA)

PLCPA offers courses in English for Specific Purposes (ESP) for international students and any interested domestic students. These courses are called English for Professional Success (EPS), and they have taken the place of English as a Second Language (ESL) courses starting in fall 2006. The EPS courses have a dual purpose: to ensure the academic as well as professional success of the international students. Students will be exposed to the different genres of academic and professional discourse in their different fields of study.

Placement Testing

While students may have achieved the TOEFL or other proof of English-proficiency score required for admission, further development in English proficiency may be necessary to support academic achievement and to ensure effective progress in the student's chosen academic program. All incoming graduate and undergraduate international students, unless exempt from testing, must be tested for placement during the orientation session. New international students should not assume that they are exempt from this English test even though they have had many years of English education in their home countries or abroad. Students will be placed into or exempted from taking an EPS course based on the result of their placement test.

Pre-University Program

Effective spring 2013, the FDU Pre-University Program (PUP) provides opportunities for international students with intermediate English skills who meet the University's academic admission standards but require additional support in academic English to take highly specialized English language support courses in the first semester while they study and earn academic credit toward their bachelor's degree. Although the bulk of the courses are English for Professional (EPS) courses, students may earn up to 11 credits toward their undergraduate degree. Matriculated undergraduate students may be placed into this PUP EPS course based on their placement test.

Matriculated Program

Undergraduate students who are placed into an EPS course must take the class and corequisite lab and will be charged tuition upon registration. Starting in fall 2007 and in spring 2008, respectively, graduate students who are placed into an EPS course and who matriculate into a University College or into a Silberman College of Business degree program are required to take the class and corequisite lab and will be charged a nominal fee. Starting in fall 2011, graduate students who are placed into an EPS course and who matriculate into a degree program in the Anthony J. Petrocelli College of Continuing Studies are required to take the class and corequisite lab as well and will be charged a nominal fee.

EPS Courses

Students will take an EPS course that is relevant to their program of study. The courses offered are:

	Credits
EPS0099	
Academic Writing Skills	4.5

Multidisciplinary Minors

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

Credits

EPS1101
English for Professional Success: Business and Hotel and Restaurant Management.....3
EPS1102
English for Professional Success: Engineering and Computer Science.....3
EPS1103
English for Professional Success: Nursing, Natural Sciences and Psychology.....3
EPS1104
English for Professional Success: Criminal Justice, Prelaw, History and Political Science.....3
EPS1105
English for Professional Success: Still Exploring, Communication, Education and Art.....3
EPS1109
English for Occupational Purposes.....3
EPS1201
English for Professional Success: Global Exchange — New York City as a Classroom.....3

Each EPS course except for EPS1201 English for Professional Success: Global Exchange — New York City as a Classroom has a corequisite lab. Students will take only one EPS course. However, to exit the program, a student must meet the learning objectives set by the curriculum. Students who fail to meet the minimum standards required to pass the course will have to repeat the course. Upon exiting the program, undergraduate students will take the Academic Writing (ENWR1101) course. Graduate students do not need to take any other English or writing courses unless required by their own department.

Application of Credits for EPS Courses

International undergraduate students can fulfill a free elective credit (upon approval of individual academic departments) or partially fulfill the Language and Culture Liberal Arts requirement upon the successful completion of the EPS course:

Silberman College of Business: 3 credits may be applied as free elective.

Other Metropolitan Campus programs: 3 credits may be applied to meet foreign-language requirements.

The credits for the EPS courses are not figured into the grade point ratio for graduate students.

Multidisciplinary Minors (15 credits total)

African Studies Minor

The African studies minor is a multidisciplinary program that provides students with opportunities to widen their perspectives and understanding of Africa's social, political and economic systems and also to deepen their insights into the profound impact of African societies on countries throughout the world.

The program enables students to acquire the skills needed to engage successfully in a postgraduate degree in African studies. It also prepares them to lead academic and nonacademic organizations (such as NGOs, etc.) in an ever-changing global society and particularly in Africa.

With the experience, students should be able to secure employment with institutions, governmental and nongovernmental organizations where their knowledge of Africa may be required to travel to Africa with a sense of appreciation for the changing situation and diverse but dynamic nature of the continent.

Students are required to complete 15 credits of course work including the following:

• 6 credits of foundational courses, including AFST1101 Africa and Africans I: History and Traditions and AFST1102 Africa and Africans II: Communities and Culture.
• 9 credits of electives from a list of courses divided into three main themes: Africa centered; Africa diaspora (including African-American studies); and Africa in the global context.

Questions about advising, inclusion of courses in the concentration may be directed to the School of Criminal Justice, Political Science and International Studies, at (201) 692-2465.

American Studies Minor

This 15-credit minor explores the culture, history, literature and politics of the United States. In addition, through this minor, students develop a deeper understanding of the status of the contemporary United States and its place in the world today. The following courses count toward this minor:

Credits

ENGL2140
African-American Literature.....3
ENGL3369
American Literature I.....3

Credits

ENGL3370
American Literature II.....3
ENGL3383
Ethnic Literature in the United States...3
ENGL3409
Glory and Shame: America on Film.....3
HIST1114
U.S. History to 1865.....3
HIST1115
U.S. History Since 1865.....3
HIST2102
Sports in America.....3
HIST2104
United States Social and Cultural History.....3
HIST2107
U.S. Economic History.....3
HIST2108
The American Presidency.....3
HIST3101
American Immigration.....3
HIST3102
Race in America.....3
HIST3104
U.S. Diplomatic History.....3
HIST3105
U.S. Environmental History.....3
HIST3106
Culture and Technology in American History.....3
HIST3107
U.S. Constitutional History.....3
HIST3120
Colonial and Revolutionary America.....3
HIST3123
The U.S. Civil War and Reconstruction.....3
HUMN2443/PHIL2443
African-American Political Thought.....3
HUMN3221
Coming of Age in America.....3
MUSIC1108
From Elvis to J. Lo: Pop Music of the Past 50 Years.....3
PHIL1105/RELI1105
World Religions in America.....3
POLS2251
Foreign Policy of the United States.....3
POLS2253
American Government.....3
POLS3312
The American Congress.....3
POLS3349
African-American Politics.....3

Other selected classes may be approved by a humanities faculty adviser. For information contact the School of the Humanities.

British Studies Minor

This15-credit minor is ideal for students who wish to or have already spent time at FDU's Wroxton College in England. Specifically, the British studies minor offers students knowledge and insight into the culture, history, literature and politics of England. In addition, through this minor, students develop a deeper understanding of the status of contemporary England and its place in the world today. The following courses count toward this minor:

	Credits
ART3415 The Development of British Painting in Britain and North America*	3
COMM3026 Communication: Culture and the Media in Britain*	3
ENGL2203 British Literature I	3
ENGL2204 British Literature II	3
ENGL3351 Medieval Literature	3
ENGL3353 Chaucer	3
ENGL3355 Renaissance Literature	3
ENGL3357 Shakespeare I	3
ENGL3358 Shakespeare II	3
ENGL3359 17th-century Literature	3
ENGL3361 Milton	3
ENGL3363 18th-century Literature	3
ENGL3365 The Romantic Era I	3
ENGL3366 The Romantic Era II	3
ENGL3367 The Victorian Era I	3
ENGL3368 The Victorian Era II	3
ENGL3421 Not of an Age … But for All Time*	3
ENGL3422 "The Play's the Thing"*	3
ENGL3463 England's Green and Pleasant Land*	3
ENGL3466 Three 19th-century Writers*	3
ENGL3467 18th-century Literature*	3
ENGL4447 "The Tempest:" Music Rich and Strange	3
HIST3422 Britain in the Modern Era*	3
HUMN4409 The British Imagination: From King Arthur to Harry Potter	3
INTER3430 The Anatomy of Contemporary Britain*	3
POLS3450 British Government and Politics*	3
POLS3454 Descent from Power: British Foreign Policy Since 1900*	3
POLS3456 The Power and Personality of the British Prime Minister*	3
SOCI3440 Women and Race in Modern Britain*	3
SOCI3445 Social Policy in Contemporary Britain*	3

Other selected classes may be approved by a humanities faculty adviser. For information contact the School of the Humanities.

*Offered at Wroxton College, England.

Computer Forensics Minor

The computer forensics minor involves the identification, preservation, extraction, interpretation and documentation of digital evidence in criminal and civil investigations. It is an interdisciplinary minor developed and administered jointly by the Lee Gildart and Oswald Haase School of Computer Sciences and Engineering and the School of Criminal Justice, Political Science and International Studies. This 15-credit minor will provide students with a strong foundation in the knowledge, understanding and competencies sought by prospective employers in the area of computer forensics.

Required Courses (12 credits)

	Credits
CRIM2218 Computer Technologies and Cyber Crime	3
CRIM3327 File System Forensic Analysis and Investigation	3
INFO1101 Computer Concepts and Technology	3
INFO4101 Data Communications and Computer Networks I	3

*Offered at Wroxton College, England.

Elective (3 credits)

	Credits
CRIM4010 Computer Forensic, Software and Hardware Applications	
or	
INFO4410 Foundations of Cybersecurity	3

Creative Writing Minor

This 15-credit minor enables students to express themselves by writing scripts, fiction, poetry and nonfiction. Since creative writing improves writing skills in general, all students will benefit from the minor in creative writing. Students in the minor will study works of literature to understand the expectations of the genres. Additionally, by writing in workshop settings, students will learn what makes fiction, poetry, scriptwriting and creative nonfiction both distinctive and unique. All students selecting the creative writing minor must take at least nine credits of creative writing courses from the following list. The remaining six credits can be fulfilled with any additional creative writing courses or any literature courses offered in the School of the Humanities:

ENGL3325 Creative Writing I (Fiction)	3
ENGL3326 Creative Writing II (Fiction)	3
ENGL3327 Creative Writing I (Poetry)	3
ENGL3328 Creative Writing II (Poetry)	3
ENGL3333 Creative Writing I (Nonfiction)	3
ENGL3334 Creative Writing II (Nonfiction)	3
ENGL3335 Creative Writing I (Scriptwriting)	3
ENGL3336 Creative Writing II (Scriptwriting)	3
ENGL3337 Creative Writing I (Cross-genre)	3
ENGL3338 Creative Writing II (Cross-genre)	3

Digital Humanities Minor

This 15-credit minor is designed for students interested in learning the essentials of digital production (e.g., graphic design, web design, photography and film) as well as digital studies (media studies, the impact of technology on society). As technology becomes increasingly intertwined with everyone's lives, it has become more im-

Multidisciplinary Minors

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

portant to possess not only an understanding of computing but to learn how to effectively utilize computer technologies in professional and personal lives as well as to understand how these same technologies can help shape lives for better or worse. With a growing number of positions in the field of information technology and projected shortage of information technologists, a digital humanities minor can help students become more competitive in the job market. The following courses count toward this minor:

	Credits
ART1174 Desktop Publishing I	3
ART1177/COMM1177 Introduction to Digital Media	3
ART1178 Multimedia on the Internet	3
ART1179 Digital Illustration and Design	3
ART1192 Digital Photography I	3
ART1843 Design for the Web	3
ART2275 Computer Animation II	3
ART2294 Two-dimensional Computer Animation	3
CRIM2235 Cyber Crime	3
CSCI1105 Survey of Computers and Computer Software	3
ENGR3000 Modern Technologies: Principles, Applications and Impacts	3
HUMN2444/PHIL2444 Technology and Its Critics	3
HUMN3041/INTER3041 Technology and Values	3
HUMN3350 Social Life On and Off the Internet	3
INFO1101 Computer Concepts and Technology	3
INFO1201 Information Technology	3
INFO2105 Internet and Web Applications	3
INFO3205 Digital Media Publishing	3
PHIL3310 Human Perspectives in a Computerized Society	3

Other selected classes may be approved by a humanities faculty adviser. For information contact the School of the Humanities.

English Language and Literature Minor

The minor in English language and literature invites students to explore the literatures of the world and offers students opportunities to increase their critical and creative writing skills. A minor in English also will help students cultivate the critical thinking and reading skills needed for many professions. Students choose 15 credits of English courses at the intermediate level or above (beyond those taken to satisfy general education requirements). At least four courses must be taken at the intermediate level or above.

Program requirements:

	Credits
British Literature Course	3
American Literature Course	3
World Literature Course	3
English Literature Electives	6

Global and Cultural Studies Minor

This 15-credit minor is designed for students who have an interest in global or popular cultures. As the workplace has become increasingly globalized, it has become especially important for professionals, regardless of the career they enter, to gain a developed understanding and knowledge of diverse cultures, nations and people. Students who select this minor will be able to choose from courses that emphasize a deeper understanding of media and popular culture (e.g., Mass Media: Image, Sound and Text; Popular Culture and the Media; Sports and Popular Culture, etc.) and courses that investigate international cultures and communities (Bollywood and Beyond: India in Film, Middle East Politics, Africa in World Affairs, etc.). The following courses count toward this minor:

	Credits
AFST1101 Africa and Africans I: History and Traditions	3
AFST1102 Africa and Africans II: Communities and Culture	3
COMM1101 Mass Media: Image, Sound and Text	3
COMM1105 Intercultural Communication	3
COMM2102 International Communication	3
COMM2104 Language, Culture and Communication	3
COMM2210 Popular Culture and the Media	3
COMM2415 Sports and Popular Culture	3
COMM3102 Media, History and Society	3
COMM4468/HUMN4468 Bollywood and Beyond: India in Film	3
ENGL3381 Popular Fiction	3
ENGL3382 Special Topics in Black Literature	3
ENGL3383 Ethnic Literature in the United States	3
ENGL3384 Postcolonial Literature	3
ENGL3389 The Global Novel	3
ENGL3392 International Literature	3
ENGL3396 South-African Literature, Sex, Politics	3
ENGL3399/HUMN3399 Continental Drift: Sex, Gender and Family in the South Asian Diaspora	3
ENGL3430 Contemporary African Literature	3
ENGL4445 Caribbean Literature	3
HIST1215 World History Since 1500	3
HIST2245 Islamic History	3
HIST3102 Race in America	3
HIST3202 Middle East	3
HIST3360 Modern African History	3
HUMN2440/PHIL2440 Human Rights	3
HUMN2443/PHIL2443 African-American Political Thought	3
HUMN2448/PHIL2448 Comparative Religions	3
HUMN2454 Music, Power and Freedom	3
HUMN2456 Dissent in Popular Culture: From Inception to Iraq	3
HUMN3220 Political and Social History of Music	3
HUMN3221 Coming of Age in America	3
HUMN3307 Slavery and Global Ethics	3

Credits

HUMN3316/RELI3316
Babylon the Great: Culture, Religion and Conflict in Iraq.....3
HUMN3396
South-African Literature.....3
LANG2201
Cultural Awareness and Languages.....3
PHIL2321
African Philosophy.....3
POLS2206
American Minority Politics.....3
POLS3324
American Minority Groups.....3
POLS3349
African-American Politics.....3
POLS3363
Middle East Politics.....3
POLS3364
Middle East in World Affairs.....3
POLS3367
Africa in World Affairs I.....3
POLS3368
Africa in World Affairs II.....3
POLS4463
Political and Economic Challenges in Africa.....3

Other selected classes may be approved by a humanities faculty adviser. For information contact the School of the Humanities.

Legal Studies Minor

The minor in legal studies is designed to provide students with advanced knowledge and understanding in the field of jurisprudence. The minor critically examines the historical and philosophical nature of civil and criminal law, legal reasoning and various legal systems and institutions. By also focusing on developing analytical and critical-thinking skills, the program helps to prepare students who are interested in working within some aspect of the legal system and/or attending law school. The minor is open to all students within University College: Arts • Sciences • Professional Studies.

The legal studies minor consists of 15 credits: four required courses and one elective course.

Required Courses (12 credits)

CRIM1120
Introduction to Jurisprudence.....3
CRIM3319
Courts and the Judicial Process.....3
CRIM3890
Legal and Analytical Reasoning.....3
POLS1101
Introduction to Political Science.....3

Elective Course (3 credits)

Select one of the following elective courses.*

Credits

CRIM1103
Criminal Law.....3
CRIM2100
Professional and Legal Writing.....3
CRIM2205
Criminal Justice Research Methods.....3
CRIM2214
Procedural Law.....3
HIST2105
Crime in History.....3
HIST2215
Constitutional History.....3
POLS2212
International Law.....3
POLS2253
American Government.....3
POLS2254
Public Policy.....3
POLS3327
Civil Rights and Liberties.....3
POLS3355
American Constitutional Law I.....3

Philosophy Minor

The interdisciplinary minor in philosophy invites students to explore the life of the mind in greater depth by investigating world philosophy, political philosophy, ethics, logic, aesthetics and the philosophy of science. This minor is ideally suited for students seeking to enhance their critical-thinking skills in preparation for further academic study or for careers in law and many other professions.

Students choose 15 credits of philosophy courses (beyond those taken to satisfy the general education requirements) in approved courses in biology, communications, criminal justice, history, humanities, philosophy, political science, psychology and/or religion. Students should see this page and page 136 or go to http://view2.fdu.edu/academics/university-college/university-collegeminors/philosophy/ for a full list of courses that count toward the minor in philosophy.

Program requirements:

Applied Ethics Course.....3
Comparative Philosophy Course.....3
Logic/Critical Thinking Course.....3
Philosophy Electives.....6

**Students can take other courses with deparmental approval.*

Applied Ethics Courses

These courses count toward the applied ethics requirement in the minor:

BIOL4405	Ethics in Science
COMM2443	Ethics in Media
CRIM3304	Criminal Justice Ethics
HIST2106	Ethical Issues in History
HUMN3307/ PHIL3307	Slavery and Global Ethics
HUMN4438/ PHIL4438	Ethics and Public Affairs
NURS3209	Bioethics
PHIL1103	Ethics
PHIL3300	Business Ethics
PHIL3310	Human Perspectives in a Computerized Society
PHIL3311	The Ethics of Food
POLS2606	Ethics and Politics
RELI3323	The Ethics of Jesus

Comparative Philosophy and Religion Courses

These courses count toward the comparative philosophy and religion requirement in the minor:

HUMN2254/ PHIL2254	War and Peace in Christianity, Judaism and Islam
HUMN2440/ PHIL2440	Human Rights
HUMN2446/ PHIL2446	Religion and Human Rights
HUMN2448/ PHIL2448	Comparative Religions
HUMN3316/ RELI3316	Babylon the Great: Culture, Religion and Conflict in Iraq
PHIL1105/ RELI1105	World Religions in America
PHIL2105	Current Moral and Social Issues
PHIL2256	Fundamentalism in Religious Practice
PHIL2321	African Philosophy
PHIL2439	Radical Political Thought
PHIL2452	Ancient Political Thought
PHIL4310	Modern Political Thought
POLS3011	Human Rights in Global Environment
RELI2107	One God, Three Paths
RELI2255	Person, Gender and Sexuality: Judaism, Christianity and Islam
RELI2273	The Battle Over the Book
RELI3324	Islamic Religion — Past and Present
RELI3334	Religion and Politics

Multidisciplinary Minors

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

Law, Logic and Critical Thinking Courses

These courses count toward the law, logic/critical thinking requirement in the minor:

CRIM1101	Introduction to Criminal Justice
CRIM1103	Criminal Law
CRIM1112	Minorities, Women and the Criminal Justice System
CRIM1120	Introduction to Jurisprudence
CRIM2214	Criminal Procedure Law
CRIM2216	Sex, Deviance and the Law
CRIM2250	Emerging Issues in Crime and Justice
CRIM3321	Drugs, Addictions and the Law
CRIM3890	Legal and Analytical Reasoning
PHIL1101	Introduction to Logic
PHIL2000	Logical Thinking
PHIL3302	Symbolic Logic
POLS2205	Comparative Legal Systems
POLS2212	International Law
POLS3355	American Constitutional Law I
POLS3356	American Constitutional Law II
PSYC3317	Psychology and the Law

Religion and Society Minor

This 15-credit interdisciplinary minor embraces religion, philosophy of religion and the history/politics/sociology/psychology of religion. This minor would be ideally suited for any student interested in exploring the multifaceted significance of religion in the modern world. Students should see this page or go to http://view2.fdu.edu/academics/university-college/university-college-minors/religion-and-society for a full list of courses that count toward the minor.

Credits

Suggested program:

Interdisciplinary Course in Religion and Society.....3
Comparative Religion or Philosophy of Religion Course.....3
History/Politics/Sociology/Psychology of Religion Course.....3
Religion and Society Electives.....6

Religion and Society Courses

Choose one from the list below:

ENGL3377/ HUMN3042	The Bible and Its Influence
HUMN2253/ PHIL2253	The Search for Meaning: Religious Responses
HUMN2254/ PHIL2254	War and Peace in Christianity, Judaism and Islam
HUMN2446/ PHIL2446	Religion and Human Rights
HUMN3316/ RELI3316	Babylon the Great: Culture, Religion and Conflict in Iraq
RELI4431	Selected Studies in Religion
SOCI3402	Religion, Identity and World Society

Comparative Religion or Philosophy of Religion Courses

Choose one from the list below:

HUMN2254/ PHIL2254	War and Peace in Christianity, Judaism and Islam
HUMN2448/ PHIL2448	Comparative Religions
HUMN3315	Jerusalem in Jerusalem
HUMN3317/ RELI3317	Ancient Egypt: Mummies/ Myth/Magic
HUMN3321/ RELI3321	The Book of Job and Its Interpreters
PHIL1105/ RELI1105	World Religions in America
PHIL2251	Basic Jewish Thought
PHIL2252	Judaism and Modernity
RELI2107	One God, Three Paths
RELI2207/ PHIL2207	Philosophy of Religion

History, Politics, Sociology or Psychology of Religion Courses

Choose one from the list below:

HIST3342	Religion and Nation Building
HUMN3318	Jerusalem: The Holy City
HUMN4439/ PHIL4439	Questioning Religion
PSYC3332	The Psychology of Religion
RELI2273	The Battle Over the Book
RELI3323	The Ethics of Jesus
RELI3324	Islamic Religion — Past and Present
RELI3334	Religion and Politics

Two Electives

Choose any two of the interdiscplinary courses approved for the minor

Romance Languages Minor

A minor for students interested in the interrelationship of romance languages. Spanish language and culture majors are not eligible for this minor. This minor requires 15 credits.

Required Course (3 credits)

Credits

LANG3321
Linguistics: Origin of Languages.....3

Students must take 6 credits at the elementary level in two languages other than the language with which they satisfied the General Education Requirements of University College: Arts • Sciences • Professional Studies.

Select 12 credits from

FREN1101, FREN1102
Elementary French I and II.....6
ITAL1101, ITAL1102
Elementary Italian I and II.....6
SPAN1101, SPAN1102
Elementary Spanish I and II.....6

Sports Media Studies Minor

Sports media studies is a 15-credit interdisciplinary minor consisting of the following courses. Students must complete 15 credits from these courses with no more than three courses coming from one discipline. Appropriate courses used to fulfill the minor for sports media studies are as follows:

COMM2415
Sports and Popular Culture.....3
COMM2743
History of Film: Special Topics*.....3
COMM3431
Sports Information Writing**.....3
COMM3432
Sports Journalism** 3
COMM4930
Selected Studies: Sports Ethics.....3
COMM4933
Selected Studies: Leadership, Communication and Sport.....3
HIST2102
Sports in America.....3
MKTG4345
Sports and Events Marketing*** 3
PHED2422
Health and Nutrition.....3

**Course is acceptable if the topic is sports related (e.g., Sports in the American Film or Sports in American Cinema).*
*** Course offered through Maxwell Becton College of Arts and Sciences.*
**** Course offered through Silberman College of Business.*

	Credits
PHED4460	
National Coaching Certification*	3
PSYC3359	
Sport Psychology	3
SOCI1113	
Sports in Society	3
SPCH4430	
Selected Studies: Sportscasting	3

For information contact the School of Art and Media Studies.

Sustainability Minor

This 15-credit minor provides students with a solid foundation in the growing field of sustainability, which includes the impact and long-term viability of environmentalism, social justice, ecology, health sciences, marine biology and food production, among other areas. As an increasing number of businesses, nonprofit organizations and educational institutions commit to "green" lifestyles and practices, FDU humanities graduates who choose this minor place themselves in a particularly competitive position in the job market. This minor is also augmented by the Career Development Center, which can help students get internships with various local environmental and sustainability-focused groups. The following courses count toward this minor:

Required Course (3 credits)

	Credits
BIOL1001, BIOL1011	
Principles of Modern Biology (Lecture and Laboratory)	3

Other Courses (12 credits)

	Credits
BIOL1105, BIOL1115	
The Human Environment (Lecture and Laboratory)	3
BIOL2120, BIOL2121	
Introduction to Aquaculture and Hydroponics (Lecture and Laboratory)	3
BIOL2250, BIOL2150	
Ecology and Field Biology (Lecture and Laboratory)	4
ENGL3044	
The Environment in Literature and Culture	3
ENGL3047	
American Nature Writers	3
ENVR1001, ENVR1002	
Introduction to Environmental Science (Lecture and Laboratory)	3
ENVR1101, ENVR1102	
Physical Geology (Lecture and Laboratory)	3
ENVR1105	
Weather and Climate	3
ENVR1123	
Natural Hazards	3
ENVR1111, ENVR1112	
Oceanography (Lecture and Laboratory)	4
ENVR1205, ENVR1215	
The Great Pacific Northwest: Environmental Issues and Cultural Perspectives (Lecture and Laboratory)	3
HIST3105	
U.S. Environmental History	3
HUMN2447	
Ecology for Life: Building a Lifestyle for a Sustainable Planet	3
MBIO1118, MBIO1128	
Beach Ecology (Lecture and Laboratory)	3
MBIO1209, MBIO1219	
Introduction to Marine Biology (Lecture and Laboratory)	4
PHIL3311	
The Ethics of Food	3
POLS3011	
Human Rights in Global Environment	3
SOCI3318	
Health and Society: Access and Issues	3

Other selected classes may be approved by a humanities faculty adviser. For information contact the School of the Humanities.

** Course offered through Maxwell Becton College of Arts and Sciences.*

Allied Health Technologies Major (B.S.A.H.T.)

Henry P. Becton School of Nursing and Allied Health

(In partnership with FDU and the Rutgers School of Health Related Professions [Rutgers SHRP])

Completion of this program will result in a Bachelor of Science in Allied Health Technologies with a concentration in health science awarded jointly between FDU and the Rutgers School of Health Related Professions (Rutgers SHRP). Students must complete 92 preprofessional credits during their first three years at FDU before applying for acceptance to the professional component at Rutgers SHRP for their senior year.

Admission Requirements

Admission to the professional component at Rutgers SHRP requires:

- A separate application in the fall of the junior year.
- Admission decisions for the professional component are made in accordance with criteria, policies and procedures established by a joint Committee on Admissions and Academic Status and cannot be guaranteed by FDU.
- Students admitted to the B.S. in allied health technologies major must maintain a minimum grade point ratio of 2.75 in their preprofessional course work.

Upon successful completion of all course work, graduates will receive a B.S. in Allied Health Technologies (B.S.A.H.T.), with eligibility for national certification and state licensure, where applicable.

Requirements for the Bachelor of Science in Allied Health Technologies Degree

1st Semester	Credits
BIOL1251	
General Biology I	3
BIOL1253	
Laboratory: General Biology I	1
CHEM1201	
General Chemistry I	3

Allied Health Technologies

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

Credits

CHEM1203
General Chemistry Laboratory I.....1
ENWR1101
Academic Writing.....3
MATH1107
Precalculus.....4
UNIV1001
Transitioning to University Life.....1
Total.....16

2nd Semester

BIOL1252
General Biology II.....3
BIOL1254
Laboratory: General Biology II.....1
CHEM1202
General Chemistry II.....3
CHEM1204
General Chemistry Laboratory II.....1
ENWR1102
Academic Research and Writing.....3
MATH1201
Calculus I.....4
UNIV1002
Preparing for Professional Life.....1
Total.....16

3rd Semester

BIOL2203, BIOL2223
Human Anatomy and Physiology I (Lecture and Laboratory).....4
CHEM2261
Organic Chemistry I.....3
CHEM2263
Organic Chemistry Laboratory I.....2
CSCI1105
Survey of Computers and Computer Software.....3
SPCH1155
Public Speaking.....3
UNIV2001
Cross-cultural Perspectives.....3
Total.....18

4th Semester

BIOL2125, BIOL2126
Microbiology for the Health Sciences (Lecture and Laboratory)....4
BIOL2204, BIOL2224
Human Anatomy and Physiology II (Lecture and Laboratory).....4
CHEM2262
Organic Chemistry II.....3
CHEM2264
Organic Chemistry Laboratory II.....2
UNIV2002
Global Issues.....3
Total.....16

5th Semester Credits

CHEM3281
Biochemistry I.....3
MEDT1130
Bioethics.....3
PHYS2201
Physics Laboratory I.....1
PHYS2203
University Physics I.....3
PSYC1103
General Psychology.....3
Total.....13

6th Semester

NURS4420
Health Care Management.....3
PHIL1000
The Life of the Mind.....3
PHYS2202
Physics Laboratory II.....1
PHYS2204
University Physics II.....3
PSYC2201
Statistics.....3
Total.....13

After completion of three years of study (a minimum of 92 credits) at FDU, the program is completed in 12–15 months at the Rutgers School of Health Related Professions (Rutgers SHRP). With the successful completion of the program at Rutgers SHRP, the student will earn the Bachelor of Science in Allied Health Technologies.

Health Science Concentration

The Bachelor of Science in Allied Health Technologies with a concentration in health science is an advanced standing/completion-degree program designed for the professional development of registered/licensed allied health professionals. The program's objectives are to provide educational opportunities for allied health professionals who have graduated from accredited programs with certificates/associate degrees and are certified/licensed to practice. The program also will provide career mobility and educational articulation for these students.

Registered allied health professionals, who graduated from an accredited hospital-based program, may receive up to 30 credits toward the Bachelor of Science degree. Additional transfer credits may be granted for courses taken at accredited collegiate institutions. Graduates from an accredited associate degree program may receive up to 60 transfer credits toward the Bachelor of Science degree. Graduates must submit proof of licensure/certification from the allied health programs they attended.

The curriculum is interdisciplinary in structure and students may take courses in a part-time or full-time basis.

In addition to the 30 transfer credits, the courses listed under the Requirements for the Bachelor of Science in Allied Health Technologies (page 137 and this page) need to be completed for graduates of **hospital-based allied health programs**.

In addition to the 60 transfer credits, the courses listed under the Requirements for the Bachelor of Science in Allied Health Technologies (pages 137–138) need to be completed for graduates of an **associate-degree allied health program**.

Art Major (B.A.)

School of Art and Media Studies

The school offers a major in art with concentrations in arts management, computer art and design, graphic art and design and painting/drawing.

Minors for non-fine arts majors are offered in art (computer animation, computer graphics, digital media for advertising, digital tools for social media, fine arts techniques and printmaking) and theater (see B.A. in fine arts for theater minor).

Requirements for the Bachelor of Arts Degree

Students majoring in art must complete 42 credits of course work in art, 52 credits of liberal arts core requirements and an 18-credit minor concentration. Each of the separate concentrations has groups of required courses in its areas of specialization. Guidance by the students' individual advisers is essential in guiding them through each specialization.

The required courses in art are designed to provide students interested in the visual arts with a strong foundation program of 24 credits in drawing, design, color and art history. Additionally, in the senior year, a 6-credit senior project and seminar are required for the degree.

The remaining 18 credits (for a total of 42) may be taken in a variety of art electives, as well as required courses for the concentrations in arts management, computer art and design and painting/drawing.

Outline of Program

Except for the freshman foundation courses (which must be scheduled in the first and second semesters as indicated below), the semester assignment of courses in this outline is only suggested. Students have the option of distributing the electives, with the approval of a faculty adviser, among the semesters as they deem appropriate.

Freshman Foundation

Required Art Courses	Credits
ART1141 2-Dimensional Design (1st semester)	3
ART1144 Color Theory I (2nd semester)	3
ART1151 General Drawing I (1st semester)	3
ART1153 Life Drawing I (2nd semester)	3

General Requirements

ART1107, ART1108 Development of Art I and II (3rd and 4th semesters)	6
ART1120 Modern Art to Mid-century	3
ART4821 Portfolio	3

Arts Management Concentration

The concentration in arts management is designed to provide undergraduate students with the background to work in gallery, museum and corporate-collection industries.

Candidates for this concentration must complete the following 3-credit courses:

ART1107	Development of Art I
ART1108	Development of Art II
ART1120	Modern Art to Mid-century
ART1141	2-Dimensional Design
ART1144	Color Theory I
ART1151	General Drawing I
ART1153	Life Drawing I
ART1177	Introduction to Digital Media
ART4438	Selected Studies: Art Management Internship
ART4439	Selected Studies: Arts Management Internship

Students are strongly encouraged to complete the secondary area of concentration in business administration for non-College of Business students listed under the Silberman College of Business section.

Computer Art and Design Concentration

The computer art and design concentration focuses on the interactive world of broadcast, 3D, gaming and animation. Students learn principles of 3D modeling, animation and interactivity including texture, lighting and camera action.

Major Requirements (18 credits)

ART1107	Development of Art I
ART1108	Development of Art II
ART1141	2-Dimensional Design
	or
ART1142	3-Dimensional Design
ART1144	Color Theory I
ART1151	General Drawing I
	or
ART1161	Painting I
ART4821	Portfolio

Major Concentration (15 credits)

Choose five from the following courses:

ART1177	Introduction to Digital Media
ART1178	Multimedia on the Internet
ART1192	Digital Photography I
ART1843	Design for the Web
ART2271	Adobe® After Effects: Broadcast Graphics
ART2274	Computer 3-Dimensional Modeling
ART2294	2-D Computer Animation
ART2295	3D Computer Animation
CSCI3317	Computer Game Programming

Graphic Art and Design Concentration

The graphic art and design concentration exposes students to all aspects of graphic design and data visualization with outputs to print, web and smart devices.

Major Requirements (18 credits)

ART1107	Development of Art I
ART1108	Development of Art II
ART1131	History of Graphic Design and Illustration
ART1144	Color Theory I
ART1151	General Drawing I
	or
ART1161	Painting I
ART4821	Portfolio

Major Concentration (15 credits)

Choose five from the following courses:

ART1141	2-Dimensional Design
ART1167	Collage and Mixed Media
ART1174	Desktop Publishing I
ART1177	Introduction to Digital Media
ART1179	Digital Illustration and Design
ART1192	Digital Photography I
ART2215	Photoshop® for Advertisement and Illustration
COMM1000	Digital Storytelling
COMM2321	Advertising Principles
COMM3345	Advertising Copywriting and Layout

Biochemistry

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

Painting/Drawing Concentration

In addition to basic and advanced levels of painting and drawing courses, courses in color theory, two- and three-dimensional design, life drawing, watercolor, pastels, sculpture, ceramics, jewelry making and printmaking are offered.

Major Requirements (42 credits)

Visual Arts Foundation (24 credits)

ART1107 Development of Art I
ART1108 Development of Art II
ART1141 2-Dimensional Design
ART1144 Color Theory I
ART1151 General Drawing I
ART1153 Life Drawing I
ART4821 Portfolio
Any Art History Course

Major Concentration (18 credits)

Art Minors

(For Non-Fine Arts and Non-Art Majors)

Students who desire a minor in art, and who are not majoring in fine arts, may enroll in this program. A selection of courses totaling at least 15 credits, and arranged with the guidance of a fine arts adviser, is required.

Computer Animation Minor

ART1153 Life Drawing I
ART2271 Adobe® After Effects: Broadcast Graphics
ART2274 Computer 3-Dimensional Modeling
ART2294 2-D Computer Animation
ART2295 3D Computer Animation

Computer Graphics Minor

ART1177 Introduction to Digital Media
ART1178 Multimedia on the Internet
ART1179 Digital Illustration and Design
ART1843 Design for the Web
ART2295 3D Computer Animation
or
ART2271 Adobe® After Effects: Broadcast Graphics

Digital Media for Advertising Minor

ART1170 Advertising Design
ART1174 Desktop Publishing I
ART1178 Multimedia on the Internet
ART1843 Design for the Web
ART2215 Photoshop® for Advertisement and Illustration

Digital Tools for Social Media Minor

ART1177 Introduction to Digital Media
ART1178 Multimedia on the Internet
ART1843 Design for the Web
COMM1000 Digital Storytelling
COMM3444 Public Relations

Fine Art Techniques Minor

ART1144 Color Theory I
ART1151 General Drawing I
ART1157 Printmaking I
ART1161 Painting I
ART1169 Watercolor Painting I
or
ART1841 Pastel Drawing I

Printmaking Minor

ART1144 Color Theory I
ART1151 General Drawing I
ART1157 Printmaking I
ART1158 Silk-screen Printing I
ART1159 Monotype Printmaking

Biochemistry Major (B.S.)

School of Natural Sciences

The emphasis of the biochemistry curriculum is at the chemical and molecular level and is strongly based on a chemistry foundation. It is designed for meeting the entrance requirements for medical and dental schools, and to prepare the students for careers in biochemistry and for graduate study in this important area.

CHEM1201 General Chemistry I and CHEM1203 General Chemistry Laboratory I will be waived for students who achieve a satisfactory score on the Advanced Placement Chemistry Test. Students must have a grade of C- or higher in all major courses.

The School of Natural Sciences has a strict "C-gate" policy for a number of its fundamental science classes. This policy is designed to ensure that students are well equipped to do their best in the higher-level courses by first mastering the basics. Students who have not obtained a minimum grade of C- in any course in the following sequences must repeat that course before attempting the next course in that sequence. This applies to both science and non-science majors. The C-gate sequence is CHEM1201 General Chemistry I, CHEM1202 General Chemistry II, CHEM2261 Organic Chemistry I, CHEM2262 Organic Chemistry II, PHYS2203 University Physics I and PHYS2204 University Physics II.

Prerequisites: elementary and intermediate algebra, plane geometry, trigonometry and one unit each of chemistry and physics.

Requirements for the Bachelor of Science Degree

1st Semester	Credits
BIOL1251, BIOL1253 General Biology I (Lecture and Laboratory)	4
CHEM1201 General Chemistry I (Lecture)	3
CHEM1203 General Chemistry Laboratory I	1
ENWR1101 Academic Writing	3
MATH1201 Calculus I	4
UNIV1001 Transitioning to University Life	1
Total	16

Biochemistry

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

2nd Semester Credits
BIOL1252, BIOL1254
General Biology II (Lecture and Laboratory).....4
CHEM1202
General Chemistry II (Lecture).....3
CHEM1204
General Chemistry Laboratory II.....1
ENWR1102
Academic Research and Writing.....3
MATH2202
Calculus II.....4
UNIV1002
Preparing for Professional Life.....1
Total.....16

3rd Semester
CHEM2261
Organic Chemistry I (Lecture).....3
CHEM2263
Organic Chemistry Laboratory I.....2
ENGL2201
Masterpieces of World Literature I.....3
PHYS2201
Physics Laboratory I.....1
PHYS2203
University Physics I (Lecture).....3
UNIV2001
Cross-cultural Perspectives.....3
Total.....15

4th Semester
CHEM2262
Organic Chemistry II (Lecture).....3
CHEM2264
Organic Chemistry Laboratory II.....2
ENGL2202
Masterpieces of World Literature II.....3
PHYS2202
Physics Laboratory II.....1
PHYS2204
University Physics II (Lecture).....3
UNIV2002
Global Issues.....3
Total.....15

5th Semester
CHEM3241
Physical Chemistry I (Lecture).....3
CHEM3243
Physical Chemistry Laboratory I.....2
CHEM3281
Biochemistry I.....3
Credits
Humanities/Social Science Elective*.....3
Advanced Mathematics Course**.....3
Total.....14

6th Semester
BIOL6733
Enzymology.....3
CHEM3242
Physical Chemistry II (Lecture).....3
CHEM3244
Physical Chemistry Laboratory II.....2
Free Electives.....5
Total.....13

7th Semester
BIOL4405
Ethics in Science.....3
CHEM2211
Inorganic Chemistry I.....3
CHEM3231, CHEM3232
Analytical Chemistry I (Lecture and Laboratory).....4
Free Elective.....3
Science Elective*** 3
Total.....16

8th Semester
BIOL2210, BIOL2211
Genetics (Lecture and Laboratory).....4
CHEM4233
Instrumental Analysis (Lecture).....3
CHEM4234
Instrumental Analysis Laboratory.....2
CHEM4314, CHEM3314
Inorganic Chemistry II (Lecture and Laboratory).....3
SPCH1155
Public Speaking.....3
Total.....15

B.S. in Biochemistry/M.S. in Applied Clinical Nutrition

(with School of Applied Clinical Nutrition, New York Chiropractic College)

The University offers a five-year program that allows qualified students to attain a Bachelor of Science degree in biochemistry and a Master of Science degree in applied clinical nutrition. For details see page 219.

**Humanities/Social Science Electives: may be courses in social sciences, history, philosophy, literature or foreign language. (Foreign language is recommended for students intending to go to graduate school.)*
***Selected from MATH2203 Calculus III or MATH2337 Applied Statistics I.*
****Science Electives: may be chosen from upper-level undergraduate (3000–4000) or graduate science courses or independent studies.*

B.S. in Biochemistry/M.S. in Chemistry with Pharmaceutical Chemistry Concentration

The University offers a five-year program that allows qualified students to attain a Bachelor of Science degree in biochemistry and a Master of Science degree in chemistry with a pharmaceutical chemistry concentration. For details see page 220.

B.S. in Biochemistry/M.S. in Cosmetic Science

The University offers a five-year program that allows qualified students to attain a Bachelor of Science degree in biochemistry and a Master of Science degree in cosmetic science. For details see page 221. This program is designed for students who plan a career in the cosmetic, toiletries or fragrance industries.

Biology

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

Biology Major (B.S.)

School of Natural Sciences

This curriculum is designed for students who plan to attend graduate school and for students who wish to prepare for admission to a school of medicine, dentistry, pharmacy, osteopathy, podiatry, veterinary medicine or chiropractic, as well as those not planning to take an advanced degree in biology. Students should consult the catalog of the school they plan to attend in order to include in their undergraduate programs any special prerequisites not included in the biology curriculum. The preprofessional adviser helps students prepare for entrance into their desired professions.

Premedical Students: Entrance credits vary, but most medical schools require three or four years of college. The biological sciences curriculum fulfills the basic requirements for admission to medical school. The Medical College Admission Test of American Medical Colleges also is required by medical schools. See page 273 for "Premedical Degree Option."

Predental Students: The majority of the students accepted into dental school have completed at least three years of undergraduate work. The college study must include, as a minimum, at least two semesters' credit in each of the following: English, biology, physics, inorganic/general chemistry and organic chemistry. Lectures and laboratory work are required in the science courses. The rest of the work may be in the liberal arts electives such as history, philosophy, psychology, economics, English, foreign languages, mathematics and sociology. See page 273 for "Predental Degree Option."

The "Preprofessional Degree Option" may be considered by students accepted into any medical or dental school after completion of three years of college; consult the index for requirements. Preprofessional advisement is done by the school director, faculty and the preprofessional adviser.

Combined B.S./M.S. in Biology: Qualified biology majors in the fifth semester, with departmental approval and a grade point ratio of 3.00 or higher, may plan a program to complete the requirements for a Master of Science degree in one additional year beyond their bachelor's program. See page 222 for details.

Accelerated Programs with Professional Schools

University College has combined degree programs with professional schools for its exceptional students. In these programs, students earn both their B.S. degree and professional degree in one year less time than the two degrees normally would require separately. These programs include:

- B.S./D.M.D. (Doctor of Dental Medicine) with Lake Erie College of Osteopathic Medicine School of Dental Medicine, Erie, Pa.
- B.S./D.M.D. with the Rutgers School of Dental Medicine, Newark, N.J.
- B.S./M.D. with Poznan University School of Medical Sciences, Poland
- B.S./M.D. with Ross University School of Medicine, Portsmouth, Dominica, West Indies
- B.S./M.D. with Universidad Autónoma de Guadalajara, Mexico
- B.S./D.C. with Life Chiropractic College West, San Lorenzo, Calif.
- B.S./D.C. with Logan College of Chiropractic, Chesterfield, Mo.
- B.S./D.C. with New York Chiropractic College, Seneca Falls, N.Y.
- B.S./D.C. with Palmer College of Chiropractic, Davenport, Iowa
- B.S./D.C. with Western States Chiropractic College, Portland, Ore.
- B.S./D.V.M. (Doctor of Veterinary Medicine) with Ross University, School of Veterinary Medicine, St. Kitts
- B.S./D.P. (Doctor of Pharmacy) with Bernard J. Dunn School of Pharmacy, Shenandoah University, Winchester, Va.
- B.S./D.P. (Doctor of Pharmacy) with FDU School of Pharmacy and Health Sciences, Florham Park, N.J.
- B.S./D.O. (Doctor of Osteopathy) with Lake Erie College of Osteopathic Medicine, Erie, Pa.
- B.S./D.P.T. (Doctor of Physical Therapy) with Rutgers School of Health Related Professions, Newark (only offered through the Henry P. Becton School of Nursing and Allied Health)
- B.S./D.P.M. (Doctor of Podiatric Medicine) with New York College of Podiatric Medicine, New York City
- B.S./M.S. with Finger Lakes School of Acupuncture and Oriental Medicine, New York Chiropractic College, Seneca Falls, N.Y.

See pages 235–263 for details.

Requirements for the Bachelor of Science Degree

For matriculation in the biology major curriculum, successful completion of secondary-school courses in elementary algebra and plane geometry and a year of science are required.

Candidates for the Bachelor of Science degree must complete the following courses and earn a grade of C- or higher in the course work.

Students must have a C- or higher in BIOL1251, BIOL1253 General Biology I; BIOL1252, BIOL1254 General Biology II; ENVR1111, ENVR1112 Oceanography; and MBIO1209 Introduction to Marine Biology to take a 2000- or higher-level science course.

The School of Natural Sciences has a strict "C-gate" policy for a number of its fundamental science classes. This policy is designed to ensure that students are well equipped to do their best in the higher-level courses by first mastering the basics. Students who have not obtained a minimum grade of C- in any course in the following sequences must repeat that course before attempting the next course in that sequence. This applies to both science and non-science majors. The C-gate sequence is CHEM1201 General Chemistry I, CHEM1202 General Chemistry II, CHEM2261 Organic Chemistry I, CHEM2262 Organic Chemistry, PHYS2203 University Physics I and PHYS2204 University Physics II.

Recommended Course Sequence

1st Semester	Credits
BIOL1251 General Biology I (Lecture)	3
BIOL1253 General Biology I Laboratory	1
CHEM1201 General Chemistry I (Lecture)	3
CHEM1203 General Chemistry Laboratory I	1
ENWR1101 Academic Writing	3
UNIV1001 Transitioning to University Life	1
Total	12

2nd Semester	
BIOL1252 General Biology II (Lecture)	3
BIOL1254 General Biology II Laboratory	1
CHEM1202 General Chemistry II (Lecture)	3

Biology

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

Credits

CHEM1204
General Chemistry Laboratory II.....1
ENWR1102
Academic Research and Writing.....3
MATH1107
Precalculus
or
Mathematics Sequence*.....4
UNIV1002
Preparing for Professional Life.....1
Total.....16

3rd Semester

BIOL2150, BIOL2250
Ecology and Field Biology
(Lecture and Laboratory)
or
MBIO1209, MBIO1219
Introduction to Marine Biology
(Lecture and Laboratory).....4
CHEM2261
Organic Chemistry I (Lecture).....3
CHEM2263
Organic Chemistry Laboratory I.....2
ENGL2201
Masterpieces of World Literature I.....3
MATH1201
Calculus I
or
MATH2202
Calculus II.....4
Total.....16

4th Semester

BIOL2237, BIOL2239
Human Structure and Function
(Lecture and Laboratory).....4
BIOL2300
Experimental Design..... 3
CHEM2262
Organic Chemistry II (Lecture)..... 3
CHEM2264
Organic Chemistry Laboratory II.....2
ENGL2202
Masterpieces of World Literature II.....3
Total.....15

5th Semester

BIOL2210, BIOL2211
Genetics (Lecture and Laboratory).....4
BIOL3225, BIOL3226
General Microbiology
(Lecture and Laboratory).....4
PHYS2201
Physics Laboratory I.....1

**In the freshman year, students are required to take either MATH1107 Precalculus or MATH1201 Calculus I. The first-year course must be followed by a second mathematics course in sequence (Math1201 Calculus I or MATH2202 Calculus II).*

Credits

PHYS2203
University Physics I (Lecture).....3
UNIV2001
Cross-cultural Perspectives.....3
Total.....15

6th Semester

BIOL3345
Molecular Genetics.....3
CHEM3281
Biochemistry I.....3
PHYS2202
Physics Laboratory II.....1
PHYS2204
University Physics II (Lecture).....3
SPCH
Oral Communication Elective.....3
Art/Humanities/Social Science Electives.....3
Total.....16

7th Semester

BIOL4405
Ethics in Science.....3
BIOL4432
Selected Studies in Biology.....3
BIOL4855, BIOL4856
Molecular Biology Techniques
(Lecture and Laboratory).....3
BIOL4900
Biology Seminar I.....1
UNIV2002
Global Issues.....3
Free Elective*.....3
Total.....16

8th Semester

BIOL4240, BIOL4241
Molecular Cell Biology
(Lecture and Laboratory).....4
BIOL4420
Evolution.....3
BIOL4901
Biology Seminar II.....1
Free Electives*.....6
Total.....14

Biotechnology Concentration

The concentration in biotechnology is de-signed to provide the undergraduate student with a thorough background in molecular and cellular biology, with emphasis on current developments in areas including genetics, immunology, microbiology, cell physiology, recombinant DNA techniques and cell and tissue culture. This program prepares students for careers in research or the health care professions, as well as careers in business, law and scientific writing.

**Free Electives: any course offered at the University after consultation with an adviser, but may include no more than 6 credits of 1000-level biology courses. Physical education is recommended for students intending to attend schools of veterinary medicine.*

6th Semester Credits

BIOL4240, BIOL4241
Molecular Cell Biology
(Lecture and Laboratory).....4
PHYS2202
Physics Laboratory II.....1
PHYS2204
University Physics II.....3
Art/Humanities/Social Sciences
Electives.....6
Free Elective*.....3

7th Semester

BIOL3345
Molecular Genetics.....3
BIOL4855
Molecular Biology Techniques.....4
BIOL4900
Biology Seminar I.....1
BIOL6700
Advanced Biotechnology.....3
UNIV2002
Global Issues.....3
Free Elective*.....3

8th Semester

BIOL4405
Ethics in Science.....3
BIOL4901
Biology Seminar II.....1
BIOL5306
Immunology.....3
BIOL6840
Cell Culture.....3
Oral Communication Elective.....3

Chemistry Concentration

This concentration is designed for students who plan to attend graduate school or who wish to prepare for admission to a school of medicine, dentistry, chiropractic, etc., as well as those who are interested in entering directly into the workforce.

Candidates for a concentration in chemistry must complete the first five semesters of the biology major sequence, followed by the courses outlined below.

6th Semester

BIOL4240, BIOL4241
Molecular Cell Biology
(Lecture and Laboratory).....4
PHYS2202
Physics Laboratory II.....1

**Free Electives: any course offered at the University after consultation with an adviser, but may include no more than 6 credits of 1000-level biology courses. Physical education is recommended for students intending to attend schools of veterinary medicine.*

Biology

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

PHYS2204
University Physics II (Lecture).....3
Free Elective.....2
Art/Humanities/Social Science Electives.....6
Total.....16

7th Semester
BIOL4900
Biology Seminar I.....1
CHEM2211
Inorganic Chemistry I.....3
CHEM3241, CHEM3243
Physical Chemistry I
(Lecture and Laboratory).....5
CHEM3281
Biochemistry I.....3
UNIV2002
Global Issues.....3
Free Elective.....3
Total.....18

8th Semester
BIOL4405
Ethics in Science.....3
BIOL4901
Biology Seminar II.....1
CHEM3231, CHEM3232
Analytical Chemistry
(Lecture and Laboratory).....4
CHEM3282
Biochemistry II
or
BIOL6733
Enzymology.....3
Oral Communication Elective.....3
Total.....14

Environmental Science Concentration

This concentration is designed for students who plan to attend graduate school as well as those who are interested in entering directly into the workforce.

Candidates for a concentration in environmental science must complete the first five semesters of the biology major sequence, followed by the courses outlined below.

6th Semester
BIOL4240, BIOL4241
Molecular Cell Biology
(Lecture and Laboratory).....4
PHYS2202
Physics Laboratory II.....1
PHYS2204
University Physics II (Lecture).....3
Free Elective.....3
Art/Humanities/Social Science Electives*...6
Total.....17

**Humanities/Social Science Elective: course in social science, history, philosophy or political science.*

7th Semester
BIOL4900
Biology Seminar I.....1
BIOL6771
Behavioral Ecology.....3
BIOL6772
Ecotoxicology.....3
BIOL6775
Physiological Ecology.....3
UNIV2002
Global Issues.....3
Free Elective.....3
Total.....16

8th Semester
BIOL4405
Ethics in Science.....3
BIOL4414, BIOL4415
Animal Behavior
(Lecture and Laboratory).....4
BIOL4420
Evolution.....3
BIOL4901
Biology Seminar II.....1
Oral Communication Elective.....3
Total.....14

Human Physiology Concentration

This concentration is designed for students who plan to attend graduate school or who wish to prepare for admission to a school of medicine, dentistry, chiropractic, etc.

Candidates for a concentration in human physiology must complete the first four semesters of biology major sequence followed by the courses outlined below.

5th Semester
BIOL2237, BIOL2239
Human Structure and Function I
(Lecture and Laboratory).....4
BIOL3225, BIOL3226
General Microbiology
(Lecture and Laboratory).....4
PHYS2201
Physics Laboratory I.....1
PHYS2203
University Physics I.....3
UNIV2001
Cross-cultural Perspectives.....3
Total.....15

6th Semester
BIOL3357, BIOL3358
Human Structure and Function II
(Lecture and Laboratory).....4
BIOL4240, BIOL4241
Molecular Cell Biology
(Lecture and Laboratory).....4
PHYS2202
Physics Laboratory II.....1
PHYS2204
University Physics II.....3
Art/Humanities/Social Science Elective.....6
Total.....18

7th Semester
BIOL4900
Biology Seminar I.....1
BIOL6745
Endocrinology.....3
BIOL6888
Physiology of Disease.....3
BIOL6890
Neuroscience.....3
BIOL6892
Human Physiology.....3
UNIV2002
Global Issues.....3
Total.....16

8th Semester
BIOL4240, BIOL4241
Molecular Cell Biology
(Lecture and Laboratory).....4
BIOL4420
Evolution.....3
BIOL4901
Biology Seminar II.....1
Free Electives.....6
Total.....14

Biology Minor

(For Non-Science Majors)

Required credits of 15-credit minor.
BIOL1001, BIOL1011
Principles of Modern Biology
(Lecture and Laboratory).....3
BIOL1060, BIOL1061
Genetics and Society
(Lecture and Laboratory).....3
BIOL1105, BIOL1115
The Human Environment
(Lecture and Laboratory).....3
BIOL1106, BIOL1116
Over-the-Counter Drugs
(Lecture and Laboratory).....3
CHEM1118, CHEM1119
Forensic Science
(Lecture and Laboratory).....3

Environmental Science Minor

(For Non-Science Majors)

	Credits
BIOL1105, BIOL1115 The Human Environment (Lecture and Laboratory)	3
ENVR1101, ENVR1102 Physical Geology	3
ENVR1111, ENVR1112 Oceanography (Lecture and Laboratory)	4
PHYS1125, PHYS1025 Astronomy (Lecture and Laboratory)	3
PHYS1126, PHYS1026 Earth Physics (Lecture and Laboratory)	3

B.S. in Biology/M.S. in Acupuncture and Oriental Medicine

(with Finger Lakes School of Acupuncture and Oriental Medicine, New York Chiropractic College)

The University offers a five-year program that allows qualified students to attain a Bachelor of Science degree in biology and a Master of Science degree in acupuncture and oriental medicine. For details see page 222.

Chemistry Major (B.S.)

School of Natural Sciences

The Bachelor of Science with a major in chemistry program is designed for students who plan to enter graduate school or the chemical industry and for preprofessional students preparing for admission to a school of medicine, dentistry or veterinary medicine.

The Bachelor of Science with a major in chemistry program is particularly well suited to premedical students. Entrance requirements for most medical schools require an undergraduate program to include a general course in biology, general physics, English composition, a modern language and some calculus, in addition to a strong chemistry background. Premedical students should add to the Bachelor of Science with a major in chemistry program two semesters of general biology (botany and zoology) and, perhaps, one advanced biology course as electives. Preprofessional counseling for science and health careers is available on campus.

CHEM1201, CHEM1202 General Chemistry I, II and CHEM1203, CHEM1204 General Chemistry Laboratory I, II will be waived for students who achieve a satisfactory score on the Advanced Placement Chemistry Test. These students will register for CHEM2261, CHEM2262 Organic Chemistry I, II and CHEM2263, CHEM2264 Organic Chemistry Laboratory I, II and will elect a two-semester sequence in advanced chemistry electives in their seventh and eighth semesters. Students must have a grade of C- or higher in major courses.

The School of Natural Sciences has a strict "C-gate" policy for a number of its fundamental science classes. This policy is designed to ensure that students are well equipped to do their best in the higher-level courses by first mastering the basics. Students who have not obtained a minimum grade of C- in any course in the following sequences must repeat that course before attempting the next course in that sequence. This applies to both science and non-science majors. The C-gate sequence is CHEM1201 General Chemistry I, CHEM1202 General Chemistry II, CHEM2261 Organic Chemistry I, CHEM2262 Organic Chemistry II, PHYS2203 University Physics I and PHYS2204 University Physics II.

Prerequisites: elementary and intermediate algebra, plane geometry, trigonometry and one unit each of chemistry and physics.

Requirements for the Bachelor of Science Degree

Chemistry Core Curriculum

1st Semester	Credits
BIOL1251, BIOL1253 General Biology I (Lecture and Laboratory)	4
CHEM1201 General Chemistry I (Lecture)	3
CHEM1203 General Chemistry Laboratory I	1
ENWR1101 Academic Writing	3
MATH1201 Calculus I	4
UNIV1001 Transitioning to University Life	1
Total	16

2nd Semester	
BIOL1252, BIOL1254 General Biology II (Lecture and Laboratory)	4
CHEM1202 General Chemistry II (Lecture)	3
CHEM1204 General Chemistry Laboratory II	1
ENWR1102 Academic Research and Writing	3
MATH2202 Calculus II	4
UNIV1002 Preparing for Professional Life	1
Total	16

3rd Semester	
CHEM2261 Organic Chemistry I (Lecture)	3
CHEM2263 Organic Chemistry Laboratory I	2
ENGL2201 Masterpieces of World Literature I	3
PHYS2201 Physics Laboratory I	1
PHYS2203 University Physics I (Lecture)	3
UNIV2001 Cross-cultural Perspectives	3
Total	15

Chemistry

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

4th Semester Credits
CHEM2262
Organic Chemistry II (Lecture).....3
CHEM2264
Organic Chemistry Laboratory II.....2
ENGL2202
Masterpieces of World Literature II.....3
PHYS2202
Physics Laboratory II.....1
PHYS2204
University Physics II (Lecture).....3
UNIV2002
Global Issues.....3
Total.....15

5th Semester
CHEM3241
Physical Chemistry I (Lecture).....3
CHEM3243
Physical Chemistry Laboratory I.....2
CHEM3281
Biochemistry I.....3
Advanced Mathematics Course*.....3
Free Elective.....3
Total.....14

6th Semester
CHEM3242
Physical Chemistry II (Lecture).....3
CHEM3244
Physical Chemistry Laboratory II.....2
Free Electives.....6
Science Elective**.....3
Total.....14

7th Semester
BIOL4405
Ethics in Science.....3
CHEM2211
Inorganic Chemistry I.....3
CHEM3231, CHEM3232
Analytical Chemistry
(Lecture and Laboratory).....4
Humanities Elective***.....3
Science Elective**.....3
Total.....16

8th Semester
CHEM4233
Instrumental Analysis (Lecture).....3
CHEM4234
Instrumental Analysis Laboratory.....2

**Selected from MATH2203 Calculus III or MATH2337 Applied Statistics I.*
***Science Elective: Any upper-level (3000 or 4000) undergraduate or graduate science course or independent study.*
****Humanities Elective: course in social science, history, philosophy or political science.*

Credits
CHEM4314, CHEM3314
Inorganic Chemistry II
(Lecture and Laboratory).....3
Speech Course.....3
Science Elective*.....3
Total.....14

Prepharmacy Program

Fairleigh Dickinson University offers the prerequisite courses for admission to most pharmacy schools. FDU students who complete the prepharmacy program must apply for admission to and meet the entrance requirements of the pharmacy school of their choice.

1st Semester
BIOL1251, BIOL1253
General Biology I
(Lectures and Laboratory).....4
CHEM1201
General Chemistry I.....3
CHEM1203
General Chemistry Laboratory I.....1
ENWR1101
Academic Writing.....3
MATH1201
Calculus I.....4
UNIV1001
Transitioning to University Life.....1
Total.....16

2nd Semester
BIOL1252, BIOL1254
General Biology II
(Lectures and Laboratory).....4
CHEM1202
General Chemistry II.....3
CHEM1204
General Chemistry Laboratory II.....1
ENWR1102
Academic Research and Writing.....3
MATH2202
Calculus II.....4
UNIV1002
Preparing for Professional Life.....1
Total.....16

3rd Semester
BIOL4405
Ethics in Science.....3
CHEM2261
Organic Chemistry I.....3
CHEM2263
Organic Chemistry Laboratory I.....2
ENGL2201
Masterpieces of World Literature I.....3

**Science Elective: Any upper-level (3000 or 4000) undergraduate or graduate science course or independent study.*

Credits
PHYS2201
Physics Laboratory I.....1
PHYS2203
University Physics I.....3
UNIV2001
Cross-cultural Perspectives.....3
Total.....18

4th Semester
CHEM2262
Organic Chemistry II.....3
CHEM2264
Organic Chemistry Laboratory II.....2
ENGL2202
Masterpieces of World Literature II.....3
PHYS2202
Physics Laboratory II.....1
PHYS2204
University Physics II (Lecture).....3
UNIV2002
Global Issues.....3
Speech Course.....3
Total.....18

The curriculum outlined above satisfies most of the first two years' requirements for majors in biochemistry and chemistry and also provides a convenient entry to other degree programs in the University. This means that prepharmacy students will have built-in lateral mobility if their interests change. It also provides an alternative to premedical students in a profession that is also oriented to health care.

B.S. in Chemistry/M.S. in Chemistry with Pharmaceutical Chemistry Concentration

The University offers a five-year program that allows qualified students to attain a Bachelor of Science degree in chemistry and a Master of Science degree in chemistry with a pharmaceutical chemistry concentration. For details see page 225.

B.S. in Chemistry/M.S. in Cosmetic Science

The University offers a five-year program that allows qualified students to attain a Bachelor of Science degree in chemistry and a Master of Science degree in cosmetic science. For details see page 227.

Civil Engineering Major (B.S.C.E.)

Lee Gildart and Oswald Haase
School of Computer Sciences and Engineering

The Bachelor of Science in Civil Engineering (B.S.C.E.) degree program prepares graduates for entrance into the profession of civil engineering or graduate study. Civil engineering graduates work in industry as civil engineers, typically specializing as construction, geotechnical, structural or transportation engineers. They also hold other job titles, including field supervisors, project managers, job superintendents, contractors, estimators, safety specialists, schedulers, examiners or surveyors.

As the nation's infrastructure ages, more civil engineers will be needed to supervise projects that maintain, repair, rebuild or upgrade highways, bridges, dams, waste-treatment plants and water systems. Civil engineers are also needed to design and build new houses, buildings, highways and various components of infrastructure as the population continues to grow. Moreover, they will contribute to energy conservation, environmental sustainability and environmental protection by building and maintaining smart green buildings and cities, as well as managing renewable-energy projects, including building structures to support solar arrays and wind turbines in addition to dams and geothermal plants. The civil engineering program and profession will be very attractive to prospective students because of its excellent career opportunities, outstanding average starting salary, excellent median long-term salary, good job-growth projection and great career fulfillment.

The B.S.C.E. curriculum provides students with a varied and balanced educational experience through an appropriate combination of theoretical concepts and practical applications. It also provides them with an engineering-design experience that expands in breadth and depth as they progress through their studies. A stimulating course of study is maintained by offering students a variety of contemporary courses. The engineering laboratory experience is fully integrated with course work. Students work in state-of-the-art laboratories.

The program focuses on three key areas of civil engineering: structural, geotechnical and environmental engineering. Students will learn to analyze, test and use soils and construction materials; design, build, operate and maintain infrastructure and facilities; estimate construction costs; manage projects; and interpret contracts and specifications. They will also learn to survey lands, plan their usage, protect the environment and utilize energy-saving materials and devices. Students will be able to intern or find employment with construction and engineering companies and government agencies.

The program requires the successful completion of 129 credits:

	Credits
Mathematics and Science Requirements	32
Liberal Arts Requirements	20
Civil Engineering Core Requirements	77
Total	129

The mathematics and science requirements provide students with the needed foundation in these areas while the liberal arts requirements provide them with a well-rounded education and a strong foundation for thoughtful global citizenship. The Civil Engineering Core Requirements provide students with the comprehensive knowledge, skills and training needed for professional success in the field of civil engineering, bridging the mathematics and basic sciences to engineering sciences, design and applications. Six credits of elective courses in the Civil Engineering Core allow students to further focus on one particular area of civil engineering or to undertake co-operative educational experience to obtain practical work experience.

From the Civil Engineering Core, students learn construction materials and systems, computer-aided drafting, statics, strength of materials, dynamics, fluid mechanics, soil mechanics, foundations and other engineering science courses. They also study surveying, water-resource engineering, environmental and land-use planning, project management, economics and transportation engineering. More importantly, students learn fundamental designs in basic courses, and they advance to analyzing and designing concrete and steel structures in a series of five structure courses. As a culmination of their design experience, senior students are required to successfully design a component, system or a process in the Senior Design Project course, by utilizing their past course work, following professional practice and exercising sound engineering judgment.

Educational Objectives

The educational objectives of the B.S.C.E. program define the career and professional accomplishments that the graduates are being prepared to achieve three to four years after graduation. The B.S.C.E. program will produce graduates who:

1. Enter into and advance in the profession of civil engineering, particularly in the areas of structural, geotechnical or environmental engineering.
2. Continue their formal education and obtain advanced degrees in civil engineering or other related fields.
3. Become responsible professionals and global citizens who are aware of ethical issues and societal needs and problems.

These objectives are consistent with the mission of Fairleigh Dickinson University to educate and prepare students as world citizens through global education. They also fulfill the needs of the program constituencies, which include students, alumni, employers, faculty and the Industrial Advisory Board.

Student Outcomes

The B.S.C.E. program has adopted the Student Outcomes of the Engineering Accreditation Commission (EAC) of ABET as its own learning outcomes, which define the attributes, skills and knowledge that the graduates are expected to possess upon or before graduation. Each civil engineering graduate will demonstrate the following attributes and achievements as required by the EAC of ABET upon or before graduation:

a. An ability to apply knowledge of mathematics, science and engineering.
b. An ability to design and conduct experiments, as well as to analyze and interpret data.
c. An ability to design a system, component or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability.
d. An ability to function on multidisciplinary teams.
e. An ability to identify, formulate and solve engineering problems.
f. An understanding of professional and ethical responsibility.
g. An ability to communicate effectively.
h. The broad education necessary to understand the impact of engineering solu-

Civil Engineering

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

tions in a global, economic, environmental and societal context.

i. A recognition of the need for, and an ability to, engage in lifelong learning.

j. A knowledge of contemporary issues.

k. An ability to use the techniques, skills and modern engineering tools necessary for engineering practice.

The B.S.C.E. program plans to apply for an accreditation review from the Engineering Accreditation Commission (EAC) of ABET upon the degree completion of its first graduating class.

Cooperative Education Option

Students in the B.S.C.E. program have the option to undertake a cooperative education experience and earn a total of 6 academic credits toward their degrees. The co-op experience provides students a real-world grounding, linking theory and practice, academic and industrial experiences and college education and lifelong learning. It better prepares students for jobs, gives them a competitive edge in the job market, helps them develop networking skills and professional contacts and allows them to experience career fields before graduation. Industry benefits from better-prepared students with real and relevant work experience — saving time and money by reducing the training period for new employees.

Requirements for the Bachelor of Science Degree

1st Semester	Credits
ENGR1301 Engineering Practices, Graphics and Design	3
ENWR1101 Academic Writing	3
MATH1201 Calculus I	4
PHYS2201 Physics Laboratory I	1
PHYS2203 University Physics I	3
UNIV1001 Transitioning to University Life	1
Total	15

2nd Semester	Credits
ENGR1223 Introduction to CAD	2
ENGR3000 Modern Technologies: Principles, Applications and Impacts	3
ENWR1102 Academic Research and Writing	3
MATH2202 Calculus II	4
PHYS2202 Physics Laboratory II	1
PHYS2204 University Physics II	3
UNIV1002 Preparing for Professional Life	1
Total	17

3rd Semester	Credits
CENG1205 Surveying I	3
CENG1245 Construction Materials and Systems	3
CHEM1201 General Chemistry I	3
CHEM1203 General Chemistry Laboratory I	1
ENGR2221 Statics	3
MATH2210 Differential Equations	3
Total	16

4th Semester	Credits
ENGR1204 Programming Languages in Engineering	3
ENGR2210 Technical Communications	3
ENGR2228 Strength of Materials	3
ENGR3431 Dynamics	3
MATH3220 Linear Algebra	3
UNIV2001 Cross-cultural Perspectives	3
Total	18

5th Semester	Credits
CENG3250 Structural Analysis	3
CENG3256 Concrete Structures	3
CENG4241 Soil Mechanics	3
ENGR4254 Fluid Mechanics	3
MATH2203 Calculus III	3
Total	15

6th Semester	Credits
CENG3270 Environmental and Land-use Planning	3
CENG4242 Foundations	3
CENG4276 Advanced Concrete Design	3
CENG4320 Transportation Engineering	3
ENGR3351 Applied Thermodynamics	3
ENGR4221 Engineering Statistics and Reliability	3
Total	18

7th Semester	
CENG3257 Steel Structures	3
ENGR4210 Managerial and Engineering Economic Analysis	3
ENGR4263 Project Management in Engineering and Technology	3
UNIV2002 Global Issues	3
Technical Elective*	3
Total	15

8th Semester	
CENG3260 Environmental Engineering	3
CENG4272 Advanced Steel Design	3
CENG4280 Finite Element Analysis	3
CENG4385 Senior Design Project	3
Technical Elective*	3
Total	15

**Technical Electives include CENG1206 Surveying II, CENG3261 Estimating I, CENG4260 Contracts and Specifications, CENG4321 Bridge Design, EENG2221 Signals and Systems I, ENGR3211 Engineering Materials I, ENGR4001 FE/EIT Exam Preparation I, ENGR4002 FE/EIT Exam Preparation II, MENG4040 Heating, Ventilation and Air Conditioning and MENG4356 Stress and Vibration Analyses. Other technical electives may be taken with prior approval from a program adviser.*

Civil Engineering Technology Major (B.S.Civ.E.T.)

Lee Gildart and Oswald Haase School of Computer Sciences and Engineering

See "Engineering Technology Majors," page 161.

Clinical Laboratory Sciences Major (B.S.C.L.S.)

Henry P. Becton School of Nursing and Allied Health

(In partnership with FDU and the Rutgers School of Health Related Professions [Rutgers SHRP])

Completion of this program will result in a B.S. in Clinical Laboratory Sciences (B.S.C.L.S.) with a concentration in **cytotechnology** or **medical laboratory sciences** awarded jointly by FDU and the Rutgers School of Health Related Professions (Rutgers SHRP). Students will complete 94 credits during their first three years at FDU before applying for acceptance to the professional component at Rutgers SHRP.

Admission Requirements

Admission to the professional component at Rutgers SHRP requires:

• A separate application in the fall semester of the student's junior year.

• Admission decisions for the professional component are made in accordance with criteria, policies and procedures established by a joint Committee on Admissions and Academic Status and cannot be guaranteed by FDU.

• Students admitted to the B.S. in Clinical Laboratory Sciences major must maintain a minimum grade point ratio of 2.85 in their preprofessional course work.

Upon successful completion of all course work, graduates will receive a Bachelor of Science in Clinical Laboratory Sciences (B.S.C.L.S.) with eligibility for national certification and state licensure, where applicable.

Recommended Course Sequence

1st Semester	Credits
BIOL1251 General Biology I	3
BIOL1253 Laboratory: General Biology I	1
CHEM1201 General Chemistry I	3
CHEM1203 General Chemistry Laboratory I	1
ENWR1101 Academic Writing	3
MATH1107 Precalculus	4
UNIV1001 Transitioning to University Life	1
Total	16

2nd Semester	
BIOL1252 General Biology II	3
BIOL1254 Laboratory: General Biology II	1
CHEM1202 General Chemistry II	3
CHEM1204 General Chemistry Laboratory II	1
CSCI1105 Survey of Computers and Computer Software	3
ENWR1102 Academic Research and Writing	3
MATH1201 Calculus I	4
Total	18

3rd Semester	
BIOL2237, BIOL2239 Human Structure and Function I (Lecture and Laboratory)	4
CHEM2261 Organic Chemistry I	3
CHEM2263 Organic Chemistry Laboratory I	2
PSYC1103 General Psychology	3
UNIV1002 Preparing for Professional Life	1
Total	13

4th Semester	
BIOL4240, BIOL4241 Molecular Cell Biology (Lecture and Laboratory)	4
CHEM2262 Organic Chemistry II	3
CHEM2264 Organic Chemistry Laboratory II	2
PSYC2201 Statistics	3
UNIV2001 Cross-cultural Perspectives	3
Total	15

5th Semester	
BIOL2210, BIOL2211 Genetics (Lecture and Laboratory)	4
BIOL3225, BIOL3226 General Microbiology (Lecture and Laboratory)	4

Clinical Laboratory Sciences

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

Credits

CHEM3281
Biochemistry I 3
MEDT1130
Bioethics 3
UNIV2002
Global Issues 3
Total 17

6th Semester

BIOL5306
Immunology 3
MEDT1201
Introduction to Medical Technology 3
NURS4420
Health Care Management 3
NURS4430
Nursing Research 3
SPCH1155
Public Speaking 3
Total 15

After completion of three years of study (a minimum of 94 credits) at FDU, the program is completed in 12–15 months at the Rutgers School of Health Related Professions. With successful completion of the program at Rutgers SHRP, the student will earn the Bachelor of Science in Clinical Laboratory Sciences (B.S.C.L.S.).

Requirements for the Bachelor of Science Degree

Biology Requirements

BIOL1251, BIOL1253
General Biology I (Lecture and Laboratory) 4
BIOL1252, BIOL1254
General Biology II (Lecture and Laboratory) 4
BIOL2210, BIOL2211
Genetics (Lecture and Laboratory) 4
BIOL2237, BIOL2239
Human Structure and Function I (Lecture and Laboratory) 4
BIOL3225, BIOL3226
General Microbiology (Lecture and Laboratory) 4
BIOL4240, BIOL4241
Molecular Cell Biology (Lecture and Laboratory) 4
BIOL5306
Immunology 3
Total 27

Science Requirements

Credits

CHEM1201
General Chemistry I 3
CHEM1202
General Chemistry II 3
CHEM1203
General Chemistry Laboratory I 1
CHEM1204
General Chemistry Laboratory II 1
CHEM2261
Organic Chemistry I 3
CHEM2262
Organic Chemistry II 3
CHEM2263
Organic Chemistry Laboratory I 2
CHEM2264
Organic Chemistry Laboratory II 2
CHEM3281
Biochemistry I 3
Total 21

Mathematics and Computing Science Requirements

CSCI1105
Survey of Computers and Computer Software 3
MATH1107
Precalculus 4
MATH1201
Calculus I 4
Total 11

Liberal Arts Requirements

ENWR1101
Academic Writing 3
ENWR1102
Academic Research and Writing 3
PSYC1103
General Psychology 3
PSYC2201
Statistics 3
Speech Course 3
Total 15

Clinical Laboratory Sciences Requirements

Credits

MEDT1130
Bioethics 3
MEDT1201
Introduction to Medical Technology 3
NURS4420
Health Care Management 3
NURS4430
Nursing Research 3
Total 12

University Requirements

UNIV1001
Transitioning to University Life 1
UNIV1002
Preparing for Professional Life 1
UNIV2001
Cross-cultural Perspectives 3
UNIV2002
Global Issues 3
Total 8
Total 94

Clinical Professional Courses (45 credits)

Fifteen months at the Rutgers School of Health Related Professions (Rutgers SHRP).

Communication Major (B.A.)

School of Art and Media Studies

The communication program offers a wide range of media-centered courses designed to equip students with the oral, written and technical skills required for careers in such fields as advertising, public relations, print and broadcast journalism, video/media production and writing for both the screen and television. Through the internship program, communication majors gain first-hand experience in their fields. Internships are available in all areas of communication, including print journalism, broadcast journalism, cable and network television, talent representation, advertising and public relations.

Requirements for the Bachelor of Arts Degree

In addition to the course requirements of the liberal arts core curriculum of University College, students majoring in communication must complete 36 credits, including the following four required 3-credit courses:

COMM1000 Digital Storytelling
COMM2025 Communication Theory
COMM2101 Professional Communication
COMM3101 Investigating Communication: Research Methods
COMM3500 Senior Communication Seminar

In addition, students must select one 3-credit course from each of the four theme groups (theory; writing; advertising/public relations; and broadcast, film and video) and four 3-credit communication electives.

The school offers opportunities for independent study and internships in communication. Program facilities and equipment include:

• FDU's radio station, WFDU-FM (with Pro-Tools)

• FDU's digital video cameras and production equipment

• FDU's digital nonliner video editing lab (with Avid)

• The students' award-winning campus newspaper (*The Equinox*)

Broadcasting Concentration

The concentration in broadcasting is recommended for students who are planning a career in broadcasting.

Students must choose 18 credits from the following 3-credit courses.

COMM2557 Radio Broadcast Workshop
COMM2558 Basic Radio Station Engineering
COMM2648 Basic Video Editing
COMM2659 Broadcast News
COMM2673 Basic Video Production
COMM3295 Theories of the Press
COMM3360 Digital Audio Editing
COMM3558 Advanced Radio Broadcast Workshop
COMM3665 International News: The Views Beyond Our Borders
COMM3668 Television News: The Big Issues
COMM3997 Internship in Communication
COMM4470 The Television Newsroom
COMM4800 Independent Study in Communication

Convergent Journalism Concentration

The concentration in convergent journalism is designed to provide undergraduate students with basic skills and understanding in the three primary platforms of the modern media industry: print, broadcast and the internet.

Candidates for this concentration must complete the courses required for the major in communication and complete the following:

Required Courses (6 credits)

	Credits
COMM/ART1174 Desktop Publishing	3
COMM2833 News Reporting	3

Elective Courses (12 credits)

	Credits
ART1178 Multimedia on the Internet	3
COMM/ART1177 Introduction to Digital Media	3
COMM2443 Ethics in Media	3
COMM2835 Feature Article Writing	3
COMM3665 International News: The Views Beyond Our Borders	3
COMM3668 Television News: The Big Issues	3
COMM3834 Advanced News Reporting	3
COMM4470 The Television Newsroom	3

Radio Management Concentration

The concentration in radio management is designed to provide undergraduate students with the experience necessary to assume managerial careers in the radio industry.

Candidates for this concentration must complete the courses required for the major in communication and include the following courses:

COMM2321 Advertising Principles
COMM2557 Radio Broadcast Workshop
COMM2558 Basic Radio Station Engineering
COMM3360 Digital Audio Editing
COMM3558 Advanced Radio Broadcast Workshop
COMM3997 Internship in Communication

Students are strongly encouraged to complete the secondary area of concentration in business administration for non-College of Business students listed under the Silberman College of Business section.

TV/Digital Editing and Production Concentration

The concentration in TV/digital editing and production is designed to provide undergraduate students with the professional experience and hands-on training for careers in the video/broadcast and cable workplace.

The following courses must be taken for the 18-credit concentration.

COMM2648 Basic Video Editing
COMM2673 Basic Video Production
COMM3675 Advanced Video Production
COMM3749 Advanced Video Editing
COMM4470 The Television Newsroom
COMM4800 Independent Study in Communication

Communication

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

Advertising Minor

(For Non-Communication Majors)

The following courses must be taken for the 15-credit minor.

	Credits
COMM2321 Advertising Principles	3
COMM3345 Advertising Copywriting and Layout	
or	
COMM3362 Advertising Campaigns	3
COMM3444 Public Relations	3
COMM3997 Internship in Advertising	
or	
Advertising/Public Relations Elective	3
MKTG2120 Principles of Marketing	3

Communication Minor

(For Non-Communication Majors)

Non-communication majors interested in a secondary area of specialization in communication must complete 15 credits of communication courses including:

COMM Theory Group Elective	3
COMM Advertising/Public Relations Elective	3
COMM Broadcast, Film and Video Group Elective	3
COMM Communication Group Elective	3
SPCH Speech Group Elective	3

Interested students should consult with the school director for further information.

Convergent Journalism Minor

The minor in convergent journalism is designed to provide undergraduate students with the requisite skills for today's media marketplace. This 15-credit minor builds on a foundation of basic skills in the three primary platforms of the modern media industry — print, broadcast and the internet — and offers a range of free electives that allows the students to further explore areas of specific interest.

Required Courses (9 credits)

	Credits
COMM1174/ART1174 Desktop Publishing	3
COMM1177/ART1177 Introduction to Digital Media	3
COMM2833 News Reporting	3

Elective Courses (6 credits)

Choose one course from the following

ART1178 Multimedia on the Internet	3
COMM2558 Basic Radio Station Engineering	3
COMM2648 Basic Video Editing	3
COMM2835 Feature Article Writing	3

Choose one course from the following

COMM3665 International News: The Views Beyond Our Borders	3
COMM3668 Television News: The Big Issues	3
COMM3834 Advanced News Reporting	3
COMM4470 The Television Newsroom	3

Speech Minor

The minor in speech offers students interested in improving their oral communication skills to choose from a wide range of offerings — from courses in articulation and diction to those requiring the use of audiovisual aids for professional presentations. The minor would be especially useful for students planning careers in which effective oral communication is essential, such as law, teaching, broadcasting, the performing arts, hotel management, tourism, advertising and public relations. For international students it would be an ideal minor, since it would enable them to enhance their speaking facility.

Students interested in this minor must complete 15 credits from the following 3-credit courses:

COMM1106	Interpersonal Communication
COMM2557	Radio Broadcast Workshop
SPCH1105	Voice Production and Articulation
SPCH1155	Public Speaking
SPCH2153	Speech and Voice Improvement
SPCH2217	Speech for Broadcasters
SPCH2318	Oral Presentations
SPCH2351	Persuasive Speaking
SPCH2353	Speech: Small-group Discussion
SPCH4430	Selected Studies in Speech
THEA2205	Acting: Theory and Practice I

Sports Media Studies Minor

Students must complete 15 credits from the courses listed below with no more than three courses from one discipline. Appropriate courses used to fulfill the minor for sports media studies are as follows:

COMM2415	Sports and Popular Culture
COMM2743	Special Topics: Sports in American Cinema
COMM3431	Sports Information Writing
COMM3432	Sports in Society
COMM4930	Selected Studies: Sports Ethics
COMM4933	Selected Studies: Leadership, Communication and Sport
HIST2102	Sports in America
MKTG4345	Sports and Events Marketing*
PHED2422	Health and Nutrition
PHED4460	National Coaching Certification**
PSYC3359	Sports Psychology
SPCH4430	Selected Studies: Sportscasting

B.A. in Communication/ M.A. in Media and Professional Communication Five-year Program

The University offers a five-year program that allows qualified students to attain a Bachelor of Arts degree in communication and a Master of Arts degree in media and professional communication. For details see page 209.

** Course offered through Silberman College of Business.*
*** Course offered through Maxwell Becton College of Arts and Sciences.*

Computer Science Major (B.S.)

Lee Gildart and Oswald Haase School of Computer Sciences and Engineering

The Bachelor of Science degree program in computer science provides a theoretically based education in computer science, coupled with real-world applications. Students are exposed to a broad range of fundamental concepts in such areas as software engineering, computer organization, database systems, management information systems and operating systems, as well as to a wide variety of computer applications. The computer science core requirements are supplemented by four highly in-demand concentrations: **cybersecurity and information assurance**, **database management**, **game and mobile application development** and **information security administration**. Students must complete two of the four concentrations. The program requires the successful completion of at least 120 credits of course work.

Graduates of the program, many of whom enter the industry, are prepared to function well in most computing environments. They are familiar with a spectrum of fundamental principles and have been encouraged to approach problems with creativity.

This program is accredited by the Computing Accreditation Commission of ABET, http://www.abet.org, 415 North Charles Street, Baltimore, Maryland 21201, telephone (410) 347-7700. This accreditation applies only to the Bachelor of Science in computer science program offered by University College at the Metropolitan Campus, Teaneck, New Jersey.

Prerequisites: elementary and intermediate algebra, plane geometry, trigonometry and two units of science.

Educational Objectives

The educational objectives of the B.S. in computer science program define the career and professional accomplishments that the graduates are being prepared to achieve three to four years after graduation. The program will produce graduates who:

1. Utilize a varied and balanced educational experience with an appropriate combination of theoretical knowledge and practical skills that enable entrance into and advancement in the profession of computer science.

2. Build on educational knowledge and experience to continue formal education and obtain advanced degrees in the fields of computer science, management information systems, business administration or computer engineering.

3. Continue to develop as responsible professionals and global citizens who are mindful of ethical issues, societal needs and problems inherent in the computing field.

These objectives are consistent with the mission of Fairleigh Dickinson University to educate and prepare students as world citizens through global education. They also fulfill the needs of our constituents, which include students, alumni, employers, faculty and Industrial Advisory Board.

Student Outcomes

Each computer science graduate will demonstrate the following attributes and achievements as required by the Computing Accreditation Commission of ABET by the time of graduation:

a. An ability to apply knowledge of computing and mathematics appropriate to the discipline.

b. An ability to analyze a problem and identify and define the computing requirements appropriate to its solution.

c. An ability to design, implement and evaluate a computer-based system, process, component or program to meet desired needs.

d. An ability to function effectively on teams to accomplish a common goal.

e. An understanding of professional, ethical, legal, security and social issues and responsibilities.

f. An ability to communicate effectively with a range of audiences.

g. An ability to analyze the local and global impact of computing on individuals, organizations and society.

h. Recognition of the need for and an ability to engage in continuing professional development.

i. An ability to use current techniques, skills and tools necessary for computing practice.

j. An ability to apply mathematical foundations, algorithmic principles and computer science theory in modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.

k. An ability to apply design and development principles in the construction of software systems of varying complexity.

Requirements for the Bachelor of Science Degree

Computer Science Core Requirements

	Credits
CSCI1201 Computer Programming I	3
CSCI1202 Computer Programming II	3
CSCI2215 Introduction to Computer Science	3
CSCI2232 Data Structures	3
CSCI2247 Assembly Language Programming	3
CSCI3240 Computer Networks	3
CSCI3249 Computer Organization	3
CSCI3251 Design of Software Systems	3
CSCI3255 Mathematical Foundations of Computer Science	3
CSCI3268 Database Systems	3
CSCI3278 Operating Systems	3
ENGR2286 Digital System Design	3
Total	36

Mathematics Requirements

MATH1201 Calculus I	4
MATH2202 Calculus II	4
MATH2255 Discrete Structures	3
MATH3220 Linear Algebra	3
MATH3237 Probability and Statistics I	3
Total	17

Computer Science

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

Science Requirements

Two full-year sequences with laboratories totaling 16 credits or more to be chosen from:

	Credits
BIOL1251, BIOL1252 General Biology I, II	6
BIOL1253, BIOL1254 Laboratory: General Biology I, II	2
CHEM1201, CHEM1202 General Chemistry I, II	6
CHEM1203, CHEM1204 General Chemistry Laboratory I, II	2
PHYS2203, PHYS2204 University Physics I, II	6
PHYS2201, PHYS2202 Physics Laboratory I, II	2
Total	16

Humanities Requirements

ENWR1101 Academic Writing	3
ENWR1102 Academic Research and Writing	3
ENGR2210 Technical Communications	3
ENGR3000 Modern Technologies: Principles, Applications and Impacts	3
UNIV1001 Transitioning to University Life	1
UNIV1002 Preparing for Professional Life	1
UNIV2001 Cross-cultural Perspectives	3
UNIV2002 Global Issues	3
Elective	3
Total	23

Concentration Requirements 18

Students must complete any two of the four concentrations offered: cybersecurity and information assurance, database management, game and mobile application development and information security administration.

Each concentration requires the successful completion of six courses (18 credits), of which three courses (9 credits) are already included in the computer science core requirements. The remaining three courses (9 credits) of each concentration are to be taken as prescribed under the specific concentrations: cybersecurity and information assuranceconcentration, see page 155; database management concentration, see page 155; game and mobile application development concentration, see page 155; and information security administration concentration, see page 155.

*Free Electives** 10

With the approval of their adviser, upper-division students may use the following graduate courses as substitutes for their undergraduate counterparts: CSCI6603 Computer Architecture for CSCI3249 Computer Organization, CSCI6623 Database Systems for CSCI3268 Database Systems or CSCI6638 Operating Systems for CSCI3278 Operating Systems.

Sample Course Sequence

1st Semester	Credits
CSCI1201 Computer Programming I	3
ENGR2286 Digital System Design	3
ENWR1101 Academic Writing	3
MATH1201 Calculus I	4
UNIV1001 Transitioning to University Life	1
Total	14

2nd Semester	
CSCI1202 Computer Programming II	3
CSCI2215 Introduction to Computer Science	3
ENWR1102 Academic Research and Writing	3
MATH2202 Calculus II	4
UNIV1002 Preparing for Professional Life	1
Total	14

3rd Semester	
CSCI2232 Data Structures	3
CSCI2247 Assembly Language Programming	3
UNIV2001 Cross-cultural Perspectives	3
Science Elective and Laboratory	4
Free Elective	1
Total	14

4th Semester	
CSCI3251 Design of Software Systems	3
CSCI3268 Database Systems	3
MATH3237 Probability and Statistics I	3
UNIV2002 Global Issues	3
Science Elective and Laboratory	4
Total	16

5th Semester	
CSCI3240 Computer Networks	3
MATH2255 Discrete Structures	3
Concentration Courses	6
Free Elective	3
Total	15

6th Semester	
CSCI3255 Mathematical Foundations of Computer Science	3
CSCI3278 Operating Systems	3
ENGR3000 Modern Technologies: Principles, Applications and Impacts	3
Concentration Course	3
Humanities Elective	3
Total	15

7th Semester	
CSCI3249 Computer Organization	3
ENGR2210 Technical Communications	3
MATH3220 Linear Algebra	3
Concentration Course	3
Science Elective and Laboratory	4
Total	16

8th Semester	
Concentration Courses	6
Free Electives	6
Science Elective and Laboratory	4
Total	16

** Mathematics courses below MATH1201 Calculus I may not be used as free electives.*

Concentrations

Students must complete any two of the following concentrations: cybersecurity and information assurance, database management, game and mobile application development and information security administration.

Each concentration requires the successful completion of six courses (18 credits), of which three courses (9 credits) are already included in the computer science core requirements. The remaining three courses (9 credits) of each concentration are to be taken as prescribed on the next page.

Computer Science

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

Cybersecurity and Information Assurance Concentration

Required Courses (15 credits)

	Credits
CSCI2215 Introduction to Computer Science*	3
CSCI3240 Computer Networks*	3
CSCI3278 Operating Systems*	3
CSCI3410 Foundations of Cybersecurity	3
CSCI3420 Cryptography	3

Elective (3 credits)

Select one from the following courses:

CSCI3345 Firewalls and Intrusion Detection Systems	3
CSCI3391 Network and Information Security	3

Database Management Concentration

Required Courses (9 credits)

CSCI2215 Introduction to Computer Science*	3
CSCI2232 Data Structures*	3
CSCI3268 Database Systems*	3

Electives (9 credits)

Select three from the following courses:

CSCI3331 Advanced Database	3
CSCI3460 Data Warehouse and Data Mining	3
CSCI3470 Enterprise Computing for the IBM zSeries	3
CSCI4373 Distributed Database Systems	3

Game and Mobile Application Development Concentration

Required Courses (15 credits)

CSCI2215 Introduction to Computer Science*	3
CSCI2232 Data Structures*	3

**These courses are already included in the computer science core requirements.*

	Credits
CSCI3251 Design of Software Systems*	3
CSCI3314 Mobile Application Development	3
CSCI3317 Computer Game Programming	3

Elective (3 credits)

Select one from the following courses:

CSCI3380 UNIX Shell Programming	3
CSCI3444 Programming for the Internet	3
CSCI4380 Systems Development with Java	3

Students pursuing this concentration are recommended to take three computer animation courses from the School of Art and Media Studies as free electives in the B.S. in computer science curriculum.

Information Security Administration Concentration

Required Courses (18 credits)

CSCI2215 Introduction to Computer Science*	3
CSCI2232 Data Structures*	3
CSCI2235 Survey of Computing Security	3
CSCI3268 Database Systems*	3
CSCI3274 Linux System Administration	3
CSCI3783 Information Security	3

Computer Science Minor

(For Non-Computer Science Majors)

The minor in computer science consists of 15 credits and is available to qualified students. This minor provides students with a basic foundation in computer science that complements their majors and enhances their employment opportunities and career options. The problem-solving and critical-thinking skills acquired through this minor are essential skills needed to be successful in life and in the workplace. The courses for a minor in computer science within University College are as follows:

**These courses are already included in the computer science core requirements.*

Required Courses (9 credits)

	Credits
CSCI1201 Computer Programming I	3
CSCI2215 Introduction to Computer Science	3
CSCI3268 Database Systems	3

Electives (6 credits)*

Two courses must be chosen from the following:

CSCI1202 Computer Programming II	3
CSCI2232 Data Structures	3
CSCI2247 Assembly Language Programming	3
CSCI3240 Computer Networks	3
CSCI3249 Computer Organization	3
CSCI3278 Operating Systems	3
ENGR2286 Digital System Design	3
MATH2255 Discrete Structures	3

To take any course in the minor, a student must meet all the prerequisites for that course.

B.S./M.S. in Computer Science Five-year Program

The University offers a five-year program that allows qualified students to attain a Bachelor of Science degree in computer science and a Master of Science degree in computer science with a combined course load of 141 credits, which is 9 credits less than that for the separate degrees.

Students are eligible to apply for the combined B.S./M.S. degree program after completing 60 undergraduate credits and achieving a grade point ratio (GPR) of 3.00 or better in the first 15 credits of the computer science courses. Applications should be submitted before the student has completed 27 credits of computer science courses. Upon completion of their undergraduate degree, students who have maintained a 3.00 GPR in their computer

**With the approval of the academic adviser, students may take other higher-level CSCI courses as electives. Students intending to pursue an M.S. in computer science or an M.S. in management information systems must see an adviser for the proper selection of electives*

science courses will be admitted to the graduate computer science program. See page 228 for details.

B.S. in Computer Science/ M.S. in Management Information Systems Five-year Program

The University offers a five-year program that allows qualified students to attain a Bachelor of Science degree in computer science and a Master of Science degree in management information systems (MIS) with a combined course load of 141 credits, which is 9 credits less than that for the separate degrees.

Students are eligible to apply for the combined program after completing 60 undergraduate credits and achieving a grade point ratio (GPR) of 3.00 or better in the first 15 credits of computer science courses. Applications should be submitted before the student has completed 27 credits of computer science courses. Upon completion of their undergraduate degrees, students who have maintained a 3.00 GPR in their computer science courses will be admitted to the graduate MIS program. See page 229 for details.

Construction Engineering Technology Major (B.S.Con.E.T.)

Lee Gildart and Oswald Haase School of Computer Sciences and Engineering

See "Engineering Technology Majors," page 161.

Criminal Justice Major (B.A.)

School of Criminal Justice, Political Science and International Studies

The Bachelor of Arts degree in criminal justice skillfully integrates theory and application into a holistic and interdisciplinary course of study that prepares its graduates for wide-ranging career opportunities upon graduation. Its interdisciplinary curriculum is specially designed to help prepare its graduates for the complex and dynamic challenges of the country's legal and criminal justice system and the field of private security administration. As part of its curricular design, the program prepares graduates for:

- Entry-level positions within all levels of the United States criminal justice system,
- Graduate studies, law school and other professional and advanced degree programs,
- Diverse career opportunities in professional private security administration and
- Enhancing the careers of practicing professionals within the field of criminal justice, private security and other governmental and nonprofit organizations.

Incorporated within and outside of the classroom, Fairleigh Dickinson University's distinguished faculty skillfully integrate theory and academic constructs in direct relationship with the legal and operational realities that influence and shape the ever-changing nature and composite of the United States criminal justice system.

Given the challenges and demands of an ever changing society, the curriculum is by design — holistic, engaging and highly interactive — one that integrates and develops independent and collaborative research skills, critical thinking, problem-solving and effective communication skills.

The curriculum is fundamentally interdisciplinary and closely examines: the nature and incidence of crime; law; theories of criminality and punishment; the interdependent operation of the criminal justice system, involving the police and law enforcement, the courts and adjudication process and corrections; organizational and personnel management theories relevant to criminal justice management and administration; the use and application of the state-of-the art computer technologies;

forensic psychology; the forensic sciences; and the impact of major social problems on crime and the criminal justice system.

Opportunities for students to gain practical experience in various criminal justice agencies are available through the school's internship program (CRIM3303 Criminal Justice Internship).

For more information, contact Dr. Samuel Raphalides, interim director of the School of Criminal Justice, Political Science and International Studies, University College: Arts • Sciences • Professional Studies, Fairleigh Dickinson University, 1000 River Road, T-RA1-01, Teaneck, New Jersey 07666; telephone: (201) 692-2465/2627; fax (201) 692-2578; email: samuel_j_raphalides@fdu.edu.

Requirements for the Bachelor of Arts Degree

Students enrolled in the Bachelor of Arts in criminal justice program must complete a total of 120 credits, which include 47 credits of required core curriculum, 33 credits of required courses in criminal justice, 12 credits of criminal justice electives, 13 credits of free elective courses and 15 credits in a minor.

Course selections for the program meet the Minimum Standards for Criminal Justice Programs adopted by the Northeastern Association of Criminal Justice Sciences. Students must maintain a minimum grade point ratio of at least 2.50 in the major after the first 12 credits.

Major Required Courses (33 credits)

	Credits
CRIM1101 Introduction to Criminal Justice	3
CRIM1102 Criminology and Social Theory	3
CRIM1103 Criminal Law	3
CRIM2100 Professional and Legal Writing	3
CRIM2201 Police and Society	3
CRIM2202 Corrections, Parole and Probation	3
CRIM2204 Juvenile Justice and Delinquency	3
CRIM2205 Criminal Justice Research Methods	3
CRIM2208 Victimology	3
CRIM3319 Courts and Judicial Process	3
CRIM4405 Criminal Justice Capstone Seminar	3
Total	33

Criminal Justice and Legal Studies Elective Courses (12 credits)

To be selected from the following:

	Credits
CRIM1112 Minorities, Women and the Criminal Justice System	3
CRIM1120 Introduction to Jurisprudence	3
CRIM1700 Introduction to Security Operations	3
CRIM2206 Criminal Investigation	3
CRIM2207 Community Policing	3
CRIM2211 School and Workplace Violence	3
CRIM2212 Terrorism, Intelligence and Justice	3
CRIM2214 Criminal Procedure Law	3
CRIM2215 Crime and Forensics	3
CRIM2216 Sex, Deviance and the Law	3
CRIM2230 The Death Penalty	3
CRIM2231 The Art and Science of Homicide Investigation	3
CRIM2235 Cyber Crime	3
CRIM2240 Criminal Profiling	3
CRIM2250 Emerging Issues in Crime and Justice	3
CRIM2700 Security Investigations and Case Management	3
CRIM3301 Computer Technology in the Criminal Justice System	3
CRIM3302 Criminal Justice Management and Administration	3
CRIM3303 Criminal Justice Internship	3
CRIM3304 Criminal Justice Ethics	3
CRIM3305 Interviewing and Interrogation	3
CRIM3306 White-collar Crime	3
CRIM3307 Domestic Violence	3
CRIM3308 The Politics of Crime	3
CRIM3309 Introduction to Homeland Security	3
CRIM3310 Criminal Justice Professional Lecture Series	3
CRIM3311 Organized Crime	3
CRIM3312 Comparative Criminal Justice Systems: United States and Great Britain	3
CRIM3313 Analysis of Serial Killers	3
CRIM3314 Comparative International Criminal Justice Systems	3
CRIM3315 Advanced Internship	3
CRIM3316 Global Terrorism	3
CRIM3317 Fraud Investigation	3
CRIM3318 Domestic Violence	3
CRIM3320 Interviewing and Counseling Strategies	3
CRIM3321 Drugs, Addictions and the Law	3
CRIM3322 Negotiation and Conflict Management	3
CRIM3324 Community Resource Management	3
CRIM3325 Traumatic Injuries and Death Investigation	3
CRIM3326 Rehabilitative Strategies	3
CRIM3330 Dynamics of Leadership	3
CRIM3700 Asset Protection, Vulnerabilities and Technologies	3
CRIM3890 Legal and Analytical Reasoning	3
CRIM4430 Selected Studies in Criminal Justice and Legal Studies	1–3
CRIM4700 Security and Personnel Management and Administration	3
CRIM4800 Independent Study	1–3

Criminal Justice

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

Computer Forensics Minor

The computer forensics minor involves the identification, preservation, extraction, interpretation and documentation of digital evidence in criminal and civil investigations. It is an interdisciplinary minor developed and administered jointly by the Lee Gildart and Oswald Haase School of Computer Sciences and Engineering and the School of Criminal Justice, Political Science and International Studies. This 15-credit minor will provide students with a strong foundation in the knowledge, understanding and competencies sought by prospective employers in the area of computer forensics.

Required Courses (12 credits)

	Credits
CRIM2218 Computer Technologies and Cyber Crime	3
CRIM3327 File System Forensic Analysis and Investigation	3
INFO1101 Computer Concepts and Technology	3
INFO4101 Data Communications and Computer Networks I	3

Elective (3 credits)

CRIM4010 Computer Forensic, Software and Hardware Applications	
or	
INFO4410 Foundations of Cybersecurity	3

Criminal Justice Minor

(For Non-Criminal Justice Majors)

Requirements (15 credits)

Non-criminal justice majors may complete a minor in criminal justice by completing the following 15 credits:

CRIM1101 Introduction to Criminal Justice	3
CRIM1102 Criminology and Social Theory	3
CRIM2201 Police and Society	3
CRIM2202 Corrections, Parole and Probation	3
CRIM3319 Courts and Judicial Process	3

Legal Studies Minor

The School of Criminal Justice, Political Science and International Studies offers a course of study for students who are interested in the field of jurisprudence and the legal profession. The legal studies program critically examines the historical and philosophical nature of civil and criminal law, legal reasoning and various legal systems and institutions. The minor offers students a selection of specifically designed courses, academic advisement, testing strategies and preparation and support services designed to assist students who anticipate applying to law school or graduate school. The program places a strong emphasis on the importance of the undergraduate student's course of study, grade point ratio (GPR) and performance on the Law School Admission Test (LSAT) — all of which play important factors for acceptance to law school. Emphasis is placed on reading comprehension, writing, critical thinking, deduction and analytical reasoning. The course CRIM3890 Legal and Analytical Reasoning places emphasis on these skill sets, which also provides students the opportunity to take practice LSAT exams.

The legal studies minor requires the student to successfully complete 15 credits of the following courses:

	Credits
CRIM1120 Introduction to Jurisprudence	3
CRIM2250 Courts and the Judicial Process	3
CRIM3890 Legal and Analytical Reasoning	3
POLS2253 American Government	3
POLS3355 American Constitutional Law I	3

Substitutions are permitted upon approval of the school director.

Social Justice Advocacy Minor

One of the most important tasks in the criminal justice system is concerned with ensuring that clients and offenders are able to identify and receive necessary services. At various points in their official duties, police officers, probation officers, children's services workers, social workers and victim advocates are all faced with the responsibility to make the connection between people in need and community services.

This minor is designed to provide students interested in the helping aspects of the criminal justice system to obtain the tools for doing the job of helping, reintegrating and rehabilitating victims, offenders, releasees and other people who might otherwise be left behind. The minor may be aimed towards specific career goals in community corrections, children's services, victim advocacy or a more general social-work orientation.

Required Courses (6 credits)

	Credits
CRIM1125 Introduction to Social Service Advocacy	3
SOCI3316 The Family: Stability and Dysfunction	3

Students may select any three courses (9 credits)

CRIM1130 Working with Children and Families	3
CRIM1135 Social Justice and Structural Inequality	3
CRIM2208 Victimology	3
CRIM3320 Interviewing and Counseling Strategies	3
CRIM3324 Community Resource Management	3
CRIM3326 Rehabilitative Strategies	3
SOCI2805 Contemporary Social Issues	3
SOCI3201 Methods in Social Research	3
SOCI3318 Health and Society: Access and Issues	3
SOCI3320 Race, Generation and Immigration	3

B.A./M.A. in Criminal Justice

The University offers students the opportunity to earn a combined Bachelor of Arts in criminal justice and a Master of Arts in criminal justice. It is recommended that the students interested in the combined degree program declare their candidacy upon successful completion of 64 credits and/or upon entering their junior year; however, no later than having completed 90 undergraduate credits. This affords students the opportunity to collaborate with their adviser in the timely and appropriate selection of undergraduate courses. See page 211 for details.

Electrical Engineering Major (B.S.E.E.)

Lee Gildart and Oswald Haase
School of Computer Sciences and Engineering

The Bachelor of Science in Electrical Engineering degree curriculum prepares graduates for entrance into the profession of electrical engineering by providing them a varied and balanced educational experience with an appropriate combination of theoretical concepts and practical applications. A stimulating course of study is maintained by offering students a reasonable variety of required contemporary courses and electives. The engineering laboratory experience is fully integrated with course work.

Educational Objectives

The educational objectives of the Bachelor of Science in Electrical Engineering program define the career and professional accomplishments that the graduates are being prepared to achieve three to four years after graduation. The Bachelor of Science in Electrical Engineering program will produce graduates who:

1. Enter into and advance in the profession of electrical engineering, particularly in the areas of systems and devices, computers and communications.

2. Continue their formal education and obtain advanced degrees in electrical engineering or other related fields.

3. Become responsible professionals and global citizens who are aware of ethical issues and societal needs and problems.

These objectives are consistent with the mission of Fairleigh Dickinson University to educate and prepare students as world citizens through global education. They also fulfill the needs of our constituents, which include students, alumni, employers, faculty and Industrial Advisory Board.

Student Outcomes

Each electrical engineering graduate will demonstrate the following attributes and achievements as required by the Engineering Accreditation Commission of ABET upon or before graduation:

(a) An ability to apply knowledge of mathematics, science and engineering.

(b) An ability to design and conduct experiments, as well as to analyze and interpret data.

(c) An ability to design a system, component or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability.

(d) An ability to function on multidisciplinary teams.

(e) An ability to identify, formulate and solve engineering problems.

(f) An understanding of professional ethical responsibility.

(g) An ability to communicate effectively.

(h) The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context.

(i) A recognition of the need for, and an ability to engage in lifelong learning.

(j) A knowledge of contemporary issues.

(k) An ability to use the techniques, skills and modern engineering tools necessary for engineering practice.

The curriculum provides students with an engineering design experience that expands in breadth and depth as they progress through their studies. This experience is introduced early in the curriculum. Simple design examples are presented in ENGR1301 Engineering Practices, Graphics and Design. Students begin to learn basic AC and DC circuits, operational amplifiers, three-phase circuits, two-port networks, filters and system analysis in a three-course sequence in circuit theory and systems. This allows them to design complex linear and nonlinear analog electronic circuits and devices in a three-course sequence in electronics. Students also design digital systems involving logic gates, counters, shift registers, multiplexers, demultiplexers, encoders and decoders and advance to the design of microprocessor- and microcontroller-embedded systems in a three-course sequence in digital logic and system design. The design of digital filters is conducted in EENG3224 Digital Signal Processing.

Substantial engineering design experience is obtained from the integrated laboratory experience throughout the curriculum. Advanced courses help students acquire experimental, design and computer simulation skills and integrate theory with practice. As a culmination of their design experience, senior students are required to successfully design a component or system in the EENG4268 Electrical Engineering Project by utilizing their past course work, by following professional practice and by exercising sound engineering judgment.

Because of the importance of modern telecommunications and control technology, courses in communication systems, data communications and computer networks, wireless communications and control are required. Course work in computer hardware and software has been expanded.

Electives allow the student to develop design skills in various technical areas. Students follow a curriculum that is tailored to their professional interests in consultation with the electrical engineering faculty.

The B.S. in Electrical Engineerign Program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org, 415 North Charles Street, Baltimore, Maryland 21201; telephone: (410) 347-7700.

Cooperative Education Option

Students in the B.S.E.E. program have the option to undertake a cooperative education experience and earn a total of 6 academic credits toward their degrees. The co-op experience provides students a real-world grounding, linking theory and practice, academic and industrial experiences, and college education and lifelong learning. It better prepares students for jobs, gives them a competitive edge in the job market, helps them develop networking skills and professional contacts and allows them to experience career fields before graduation. Industry benefits from better-prepared students with real and relevant work experience — saving time and money by reducing the training period for new employees.

Requirements for the Bachelor of Science in Electrical Engineering Degree

First Year Credits

1st Semester

ENGR1301
Engineering Practices, Graphics and Design.....3
ENWR1101
Academic Writing.....3
MATH1201
Calculus I.....4

Electrical Engineering

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

	Credits
PHYS2201 Physics Laboratory I	1
PHYS2203 University Physics I	3
UNIV1001 Transitioning to University Life	1
Total	15

2nd Semester

	Credits
ENGR1204 Programming Languages in Engineering	3
ENGR2286 Digital System Design	3
ENWR1102 Academic Research and Writing	3
MATH2202 Calculus II	4
PHYS2202 Physics Laboratory II	1
PHYS2204 University Physics II	3
UNIV1002 Preparing for Professional Life	1
Total	18

Second Year

3rd Semester

	Credits
EENG2221 Signals and Systems I	4
EENG2287 Microprocessor System Design I	3
ENGR3200 Advanced Engineering Programming	3
MATH2210 Differential Equations	3
UNIV2001 Cross-cultural Perspectives	3
Total	16

4th Semester

	Credits
EENG2222 Signals and Systems II	3
EENG3288 Microprocessor System Design II	3
ENGR2210 Technical Communications	3
ENGR4221 Engineering Statistics and Reliability	3
UNIV2002 Global Issues	3
Total	15

Third Year

5th Semester

	Credits
EENG3223 Linear Systems	3
EENG3265 Electronics I	3
ENGR4210 Managerial and Engineering Economic Analysis	3
MATH2203 Calculus III	3
MECH2224 Mechanical Engineering Topics	3
Total	15

6th Semester

	Credits
CHEM1201 General Chemistry I	3
CHEM1203 General Chemistry Laboratory I	1
EENG3224 Digital Signal Processing	3
EENG3266 Electronics II	3
ENGR3000 Modern Technologies: Principles Applications and Impacts	3
ENGR3341 Advanced Engineering Mathematics	3
Total	16

Fourth Year

7th Semester

	Credits
EENG3244 Electromagnetic Fields and Waves	3
EENG3267 Electronics III	3
EENG4260 Preparation for Electrical Engineering Project	1
EENG4342 Data Communications and Computer Networks	3
EENG4355 Analog and Digital Control	3
Technical Elective*	3
Total	16

8th Semester

	Credits
EENG4268 Electrical Engineering Project	2
EENG4341 Communication Systems	3
EENG4347 Wireless Communication	3
Technical Electives*	9
Total	17

**Electives to be taken with approval of the faculty adviser.*

Electrical Engineering Minor

(For Non-Electrical Engineering Majors)

The minor in electrical engineering consists of 16 credits, and it is relevant to students with appropriate mathematics and science backgrounds. This minor provides students in other fields of study with a basic foundation in electrical engineering, and it can bring them additional employment opportunities and career options. The courses for a minor in electrical engineering within University College are as follows:

Required Courses (16 credits)

	Credits
EENG2221 Signals and Systems I	4
EENG2222 Signals and Systems II	3
EENG2287 Microprocessor System Design I	3
EENG3265 Electronics I	3
ENGR2286 Digital System Design	3

To take any course in the minor, a student must meet all the prerequisites for that course.

B.S.E.E./M.S. in Computer Engineering Five-year Program

The University offers a five-year program that allows qualified students to attain a Bachelor of Science in Electrical Engineering (B.S.E.E.) and a Master of Science (M.S.) degree in computer engineering with a combined degree load that is 9 credits less than that for the separate degrees. Students must register for this program by their junior year and must have achieved a cumulative grade point ratio of at least 2.75. See page 230 for details.

B.S.E.E./M.S.E.E. Five-year Program

The University offers a five-year program that allows qualified students to attain a Bachelor of Science in Electrical Engineering (B.S.E.E.) and a Master of Science in Electrical Engineering (M.S.E.E.) with a combined degree load that is 9 credits less than that for the separate degrees. Students must register for this program by their junior year and must have achieved a cumulative grade point ratio of at least 2.75. See page 231 for details.

Electrical Engineering Technology Major (B.S.E.E.T.)

Lee Gildart and Oswald Haase School of Computer Sciences and Engineering

See "Engineering Technology Majors," this page.

Engineering Technology Majors

Lee Gildart and Oswald Haase School of Computer Sciences and Engineering

Civil Engineering Technology (B.S.Civ.E.T.)

Program Co-Coordinators:
Vahid Alizadeh, Ph.D.
Marzieh Azarderakhsh, Ph.D.

Construction Engineering Technology (B.S.Con.E.T.)

Program Co-Coordinators:
Vahid Alizadeh, Ph.D.
Marzieh Azarderakhsh, Ph.D.

Electrical Engineering Technology (B.S.E.E.T.)

Program Coordinator:
Sameh Abdelazim, Ph.D.

Mechanical Engineering Technology (B.S.M.E.T.)

Program Coordinator:
Bernard Lefkowitz, Ph.D.

Engineering Technology (Bachelor of Science Degree) Programs

The Bachelor of Science degree programs in civil engineering technology, construction engineering technology, electrical engineering technology and mechanical engineering technology are designed to serve the needs of students and industry. These curricula consist of an integrated sequence of undergraduate courses emphasizing the application of engineering and scientific knowledge, methods, technology and technical skills appropriate to each discipline.

These four Bachelor of Science degree programs also provide an opportunity to graduates of two-year programs in technology with an A.A.S. or the equivalent in the appropriate discipline to continue their studies.

Transfer credits for associate degree programs will be evaluated independently for each applicant.

Prerequisites: three units of college preparatory mathematics (including algebra, trigonometry and plane geometry) and two units of a laboratory science.

Professional Accreditation

The Bachelor of Science programs in civil engineering technology, construction engineering technology, electrical engineering technology and mechanical engineering technology are accredited by the Engineering Technology Accreditation Commission of ABET, http://www/abet.org, 415 North Charles Street, Baltimore, Maryland 21201; telephone: (410) 347-7700.

Engineering Technology Majors

The engineering technology curricula have been designed to educate and train individuals for industrial positions requiring a sophisticated, but applied technical orientation. Graduates will be capable of solving design and applied engineering problems, as well as performing managerial, business and sales functions.

These baccalaureate degree programs are offered by the Lee Gildart and Oswald Haase School of Computer Sciences and Engineering in University College, full and part time, and on a day and evening basis.

Students must consult with their advisers every semester prior to registration. Most offerings have specific courses as prerequisites or corequisites. Students should ensure that these requirements are met before completing a registration for a given semester.

The engineering technology faculty maintain excellent communication with industry and encourage students to gain industrial experience. Laboratory and industrial-oriented project assignments complement the lectures and recitations throughout the program to provide those learning opportunities necessary for the contemporary engineering technologist. A capstone project based on an approved written proposal is required in the eighth semester for all students in all programs. A cooperative education option is available.

Technical Electives

The only technical electives accepted to the engineering technology programs are those offered by University College. The technical elective must be either a junior or senior course, recommended by the student's adviser and approved by the coordinator of engineering technology programs. It is the student's responsibility to meet the technical elective's co- and prerequisites.

Engineering Technology

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Work Experience

Up to 6 credits may be earned for appropriate documented industrial experience and used in lieu of technical electives. Industrial experience may not be substituted for any required course work.

Students must have successfully completed the course EGTG2210 Technical Communications before the application for "Work Experience" credits can be considered. The application form and directions for submission of necessary documents in support of the application may be obtained from the engineering technology office.

Cooperative Education Option

Students in the four B.S. programs in engineering technology have the option to undertake a cooperative education experience and earn a total of 6 academic credits toward their degrees. The co-op experience provides students a real-world grounding, linking theory and practice, academic and industrial experiences, and college education and lifelong learning. It better prepares students for jobs, gives them a competitive edge in the job market, helps them develop networking skills and professional contacts and allows them to experience career fields before graduation. Industry benefits from better-prepared graduates with real and relevant work experience, saving time and money by reducing the training period for new employees.

Civil Engineering Technology (B.S.Civ.E.T.) Program

Program Co-Coordinators: Vahid Alizadeh, Ph.D., and Marzieh Azarderakhsh, Ph.D.

The Bachelor of Science in Civil Engineering Technology program prepares students in planning, designing and building infrastructure and facilities. Civil engineering technologists work in areas such as transportation, water systems, utilities, structures, pollution control, surveying, soil mechanics and foundations.

Educational Objectives

The educational objectives of the B.S. in civil engineering technology program define the career and professional accomplishments that the graduates are being prepared to achieve three to four years after graduation. The B.S. in Civil Engineering Technology program will produce graduates who:

1. Enter into and advance their careers in the planning, design, construction, operation or maintenance of buildings and infrastructures utilizing their theoretical knowledge and practical skills in analyzing and designing systems or structures, specifying construction methods and materials, performing cost estimates and analyses and inspecting and managing civil projects.

2. Continue their formal education and obtain advanced degrees such as M.S. in construction management, M.B.A. (industrial management), M.S. in environmental studies, M.S. in technology management or other related fields.

3. Continue to conduct themselves as both responsible professionals and global citizens who are aware of and who understand ethical issues and societal needs and problems.

These objectives are consistent with the mission of Fairleigh Dickinson University to educate and prepare students as world citizens through global education. They also fulfill the needs of our constituencies, which include students, alumni, employers, faculty and Industrial Advisory Board.

Requirements for the Bachelor of Science in Civil Engineering Technology Degree (B.S.Civ.E.T.)

1st Semester	Credits
ENGR1301 Engineering Practices, Graphics and Design	3
ENWR1101 Academic Writing	3
MATH1107 Precalculus	4
PHYS2101 General Physics I	3
PHYS2201 Physics Laboratory I	1
UNIV1001 Transitioning to University Life	1
Total	15

2nd Semester	
EGTC1223 Introduction to CAD	2
ENGR3000 Modern Technologies: Principles, Applications and Impacts	3
ENWR1102 Academic Research and Writing	3
MATH1201 Calculus I	4
PHYS2102 General Physics II	3
PHYS2202 Physics Laboratory II	1
UNIV1002 Preparing for Professional Life	1
Total	17

3rd Semester	
CHEM1201 General Chemistry I	3
CHEM1203 General Chemistry Laboratory I	1
EGTC1205 Surveying I	3
EGTC1245 Construction Materials and Systems	3
EGTG2221 Statics	3
MATH2202 Calculus II	4
Total	17

4th Semester	
EGTC1206 Surveying II	3
EGTG2210 Technical Communications	3
EGTG2228 Strength of Materials	3
EGTG4221 Engineering Statistics and Reliability	3
ENGR1204 Programming Languages in Engineering	3
UNIV2001 Cross-cultural Perspectives	3
Total	18

5th Semester	
EGTC3250 Structural Analysis	3
EGTC3257 Concrete Structures	3
EGTC3261 Estimating I	3
EGTC4241 Soil Mechanics	3
EGTG4254 Fluid Mechanics	3
Total	15

6th Semester	
EGTC4242 Foundations	3
EGTC4276 Advanced Concrete Design	3
EGTG3351 Applied Thermodynamics	3

	Credits
EGTG3431 Dynamics	3
UNIV2002 Global Issues	3
Total	15

7th Semester

EGTC3256 Steel Structures	3
EGTC4263 Project Management and Control I	3
EGTG2215 Circuits I	3
EGTG3211 Materials Technology I	3
EGTG4269 Management and Engineering Economics	3
Total	15

8th Semester

EGTC3270 Environmental and Land-use Planning	3
EGTC4260 Contracts and Specifications	3
EGTC4272 Advanced Steel Design	3
EGTC4385 Civil Technology Design Project	1
Technical Electives*	6
Total	16

*Civil Engineering Technology Electives**

The student must take 9 credits of technical electives from the following list:

CHEM1202 General Chemistry II with
CHEM1204 General Chemistry Laboratory II
EGTC4320 Highway Design
EGTC4321 Bridge Design
EGTC4322 Hydraulic Design
EGTC4323 Seismic Design
EGTG3212 Materials Technology II
EGTM4356 Stress and Vibration Analyses

Other technical electives may be taken with prior approval from a program adviser. The only courses eligible are junior- and senior-level courses in University College: Arts • Sciences • Professional Studies.

**Up to 6 credits of work experience may be used in place of technical electives.*

Construction Engineering Technology (B.S.Con.E.T.) Program

Program Co-Coordinators: Vahid Alizadeh, Ph.D., and Marzieh Azarderakhsh, Ph.D.

The Bachelor of Science in Construction Engineering Technology program educates and trains students in the areas of building construction, including construction project design, development and management. The graduates of this program work in the construction industry as contractors, field supervisors, project managers, job superintendents, estimators, safety specialists, schedulers and examiners.

Educational Objectives

The educational objectives of the B.S. in Construction Engineering Technology program define the career and professional accomplishments that the graduates are being prepared to achieve three to four years after graduation. The B.S. in Construction Engineering Technology program will produce graduates who:

1. Enter into and advance their careers in construction, operation and/or maintenance of buildings and infrastructures using their theoretical knowledge and practical skills in managing and inspecting construction projects, analyzing and estimating cost and specifying construction methods and materials.

2. Continue their formal education and obtain advanced degrees such as M.S. in construction management, M.B.A. (industrial management), M.S. in environmental studies, M.S. in technology management or other related fields.

3. Continue to conduct themselves as both responsible professionals and global citizens who are aware of and who understand ethical issues and societal needs and problems.

These objectives are consistent with the mission of Fairleigh Dickinson University to educate and prepare students as world citizens through global education. They also fulfill the needs of our constituencies, which include students, alumni, employers, faculty and Industrial Advisory Board.

Requirements for the Bachelor of Science in Construction Engineering Technology Degree (B.S.Con.E.T.)

1st Semester

	Credits
ENGR1301 Engineering Practices, Graphics and Design	3
ENWR1101 Academic Writing	3
MATH1107 Precalculus	4
PHYS2101 General Physics I	3
PHYS2201 Physics Laboratory I	1
UNIV1001 Transitioning to University Life	1
Total	15

2nd Semester

EGTC1223 Introduction to CAD	2
ENGR3000 Modern Technologies: Principles, Applications and Impacts	3
ENWR1102 Academic Research and Writing	3
MATH1201 Calculus I	4
PHYS2102 General Physics II	3
PHYS2202 Physics Laboratory II	1
UNIV1002 Preparing for Professional Life	1
Total	17

3rd Semester

CHEM1201 General Chemistry I	3
CHEM1203 General Chemistry Laboratory I	1
EGTC1205 Surveying I	3
EGTC1245 Construction Materials and Systems	3
EGTG2221 Statics	3
MATH2202 Calculus II	4
Total	17

4th Semester

EGTC1206 Surveying II	3
EGTG2210 Technical Communications	3

Engineering Technology

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

	Credits
EGTG2228 Strength of Materials	3
EGTG4221 Engineering Statistics and Reliability	3
ENGR1204 Programming Languages in Engineering	3
UNIV2001 Cross-cultural Perspectives	3
Total	18

5th Semester

	Credits
EGTC3250 Structural Analysis	3
EGTC3257 Concrete Structures	3
EGTC3261 Estimating I	3
EGTC4241 Soil Mechanics	3
EGTG4254 Fluid Mechanics	3
Total	15

6th Semester

	Credits
EGTC2246 Timber Structures and General Building Systems	3
EGTC3262 Estimating II	3
EGTC4242 Foundations	3
EGTG3351 Applied Thermodynamics	3
UNIV2002 Global Issues	3
Total	15

7th Semester

	Credits
EGTC3256 Steel Structures	3
EGTC4263 Project and Management Control I	3
EGTC4265 Construction Practices I	3
EGTG2215 Circuits I	3
EGTG4269 Management and Engineering Economics	3
Total	15

8th Semester

	Credits
EGTC3270 Environmental and Land-use Planning	3
EGTC4260 Contracts and Specifications	3
EGTC4264 Project and Management Control II	3
EGTC4384 Construction Technology Design Project	1
Technical Electives*	6
Total	16

*Construction Engineering Technology Electives**

The student must take 9 credits of technical electives from the following list:

CHEM1202 General Chemistry II with
CHEM1204 General Chemistry Laboratory II
EGTC3271 Construction Labor
EGTC4320 Highway Design
EGTC4321 Bridge Design
EGTC4322 Hydraulic Design
EGTC4323 Seismic Design
EGTG3211 Materials Technology I
EGTG3431 Dynamics
EGTM4040 Heating, Ventilation and Air Conditioning
EGTM4041 Heating, Ventilation and Air Conditioning and Refrigeration Controls

Other technical electives may be taken with prior approval from a program adviser. The only courses eligible are junior- and senior-level courses in University College.

Electrical Engineering Technology (B.S.E.E.T.) Program

Program Coordinator: Sameh Abdelazim, Ph.D.

The Bachelor of Science in Electrical Engineering Technology program provides the students with the knowledge, skills and necessary training for designing and building electrical and electronic devices, systems and processes. Electrical engineering technologists find employment in such areas as computer systems and networks, electronics, telecommunications, power generation and distribution, controls, instrumentation and automation. Activities include design, liaison, installation, maintenance, services and sales.

Educational Objectives

The educational objectives of the B.S. in Electrical Engineering Technology program define the career and professional accomplishments that the graduates are being prepared to achieve three to four years after graduation. The B.S. in Electrical Engineering Technology program will produce graduates who:

1. Enter into and advance their careers in the analysis, design, development, application, implementation, building, manufacturing, installation, testing, operation and/or maintenance of electrical and electronics sytems, including those used in control, instrumentation, communications, computer or power.

2. Continue their education to obtain advanced degrees, licensures or certifications.

3. Continue to conduct themselves as both responsible professionals and global citizens who are aware of and who understand ethical issues and societal needs and problems.

These objectives are consistent with the mission of Fairleigh Dickinson University to educate and prepare students as world citizens through global education. They also fulfill the needs of our constituencies, which include students, alumni, employers, faculty and Industrial Advisory Board.

**Up to 6 credits of work experience may be used in place of technical electives.*

Requirements for the Bachelor of Science in Electrical Engineering Technology Degree (B.S.E.E.T.)

1st Semester

	Credits
ENGR1301 Engineering Practices, Graphics and Design	3
ENWR1101 Academic Writing	3
MATH1107 Precalculus	4
PHYS2101 General Physics I	3
PHYS2201 Physics Laboratory I	1
UNIV1001 Transitioning to University Life	1
Total	15

2nd Semester

	Credits
EGTC1223 Introduction to CAD	2
ENWR1102 Academic Research and Writing	3
MATH1201 Calculus I	4

	Credits
PHYS2102 General Physics II	3
PHYS2202 Physics Laboratory II	1
UNIV1002 Preparing for Professional Life	1
Total	14

3rd Semester

	Credits
CHEM1201 General Chemistry I	3
CHEM1203 General Chemistry Laboratory I	1
EGTG2210 Technical Communications	3
EGTG2215 Circuits I	3
EGTG2221 Statics	3
MATH2202 Calculus II	4
Total	17

4th Semester

	Credits
EGTE2216 Circuits II	3
EGTG2228 Strength of Materials	3
EGTG2286 Digital System Design	3
EGTG4221 Engineering Statistics and Reliability	3
ENGR1204 Programming Languages in Engineering	3
UNIV2001 Cross-cultural Perspectives	3
Total	18

5th Semester

	Credits
EENG4375 Electrical Energy Conversion	3
EGTE2287 Microprocessor System Design I	3
EGTG2265 Electronics I	3
EGTG3211 Materials Technology I	3
EGTG4254 Fluid Mechanics	3
ENGR3200 Advanced Engineering Programming	3
Total	18

6th Semester

	Credits
EGTE3266 Electronics II	3
EGTE3288 Microprocessor System Design II	3
EGTG3223 Instrumentation	3
EGTG3351 Applied Thermodynamics	3
ENGR3000 Modern Technologies: Principles, Applications and Impacts	3
Total	15

7th Semester

	Credits
EGTC4263 Project Management and Control I	3
EGTE3267 Electronics III	3
EGTE4342 Data Communications and Computer Networks	3
EGTG4224 Process and Electro/Mechanical Control Systems Technology	3
EGTG4269 Management and Engineering Economics	3
Total	15

8th Semester

	Credits
EGTE4381 Computer-aided Analysis and Design	3
EGTE4387 Electrical Technology Design Project	1
EGTG4225 Industrial Automation	3
UNIV2002 Global Issues	3
Technical Electives*	6
Total	16

*Electrical Engineering Technology Electives**

The student must take 6 credits of technical electives from the following list:

CHEM1202 General Chemistry II with
CHEM1204 General Chemistry Laboratory II
EGTE3049 Fiber Optics Technology
EGTE3051 Laser Technology
EGTE4047 Optical Technology I
EGTE4049 Optical Technology II
EGTE4052 Optical Measurements and Test Equipment I
EGTE4054 Optical Measurements and Test Equipment II
EGTE4345 Microwave Technology
EGTG3431 Dynamics
EGTG4340 Manufacturing Systems
EGTM4040 Heating, Ventilation and Air Conditioning
EGTM4041 Heating, Ventilation and Air Conditioning and Refrigeration Controls

Other technical electives may be taken with prior approval from a program adviser. The only courses eligible are junior- and senior-level courses in University College.

Up to 6 credits of work experience may be used in place of technical electives.

Electrical Engineering Technology Minor*

(For Non-Electrical Engineering Technology and Non-Electrical Engineering Majors)

The minor in electrical engineering technology consists of 15 credits and is available to qualified students. This minor provides students with a foundation in electrical engineering technology, and it can enhance their employment opportunities and career options. The courses for the electrical engineering technology minor within University College: Arts • Sciences • Professional Studies are as follows:

Required Courses (9 credits)

	Credits
EGTE2216 Circuits II	3
EGTG2215 Circuits I	3
EGTG2286 Digital System Design	3

*Electives** (6 credits)*

Two courses must be chosen from the following:

	Credits
EGTE2287 Microprocessor System Design I	3
EGTE3266 Electronics II	3
EGTE3288 Microprocessor System Design II	3
EGTE4381 Computer-aided Analysis and Design	3
EGTG2265 Electronics I	3
EGTG3223 Instrumentation	3

*To take any course in the minor, a student must meet all prererequisites for that course.
**With the approval of the academic adviser, students may take higher-level EGTE courses as electives.*

Engineering Technology

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

Mechanical Engineering Technology (B.S.M.E.T.) Program

Program Coordinator: Bernard Lefkowitz, Ph.D.

The Bachelor of Science in Mechanical Engineering Technology program prepares students to apply the principles of mechanics and energy to the design, manufacturing and operation of machinery and other mechanical devices. Employment opportunities for mechanical engineering technologists are in power generation, process control, production supervision, plant operation, manufacturing, quality assurance and reliability testing, test and field services, the automotive industry, heating, ventilating and air conditioning.

Educational Objectives

The educational objectives of the B.S. in Mechanical Engineering Technology program define the career and professional accomplishments that the graduates are being prepared to achieve three to four years after graduation. The B.S. in Mechanical Engineering Technology program will produce graduates who:

1. Enter into and advance their careers in the analysis, applied design, development, implementation and management of mechanical systems and processes, including those used in fields such as mechanical design, electromechanical devices and controls, manufacturing processes or applied thermal sciences.

2. Continue their formal education leading to professional licensures or advanced degrees in science, technology or business.

3. Continue to conduct themselves as both responsible professionals and global citizens who are aware of and who understand ethical issues and societal needs and problems.

These objectives are consistent with the mission of Fairleigh Dickinson University to educate and prepare students as world citizens through global education. They also fulfill the needs of our constituencies, which include students, alumni, employers, faculty and Industrial Advisory Board.

Requirements for the Bachelor of Science in Mechanical Engineering Technology Degree (B.S.M.E.T.)

1st Semester Credits

ENGR1301
Engineering Practices, Graphics and Design....3
ENWR1101
Academic Writing....3
MATH1107
Precalculus....4
PHYS2101
General Physics I....3
PHYS2201
Physics Laboratory I....1
UNIV1001
Transitioning to University Life....1
Total....15

2nd Semester

EGTC1223
Introduction to CAD....2
ENWR1102
Academic Research and Writing....3
MATH1201
Calculus I....4
PHYS2102
General Physics II....3
PHYS2202
Physics Laboratory II....1
UNIV1002
Preparing for Professional Life....1
Total....14

3rd Semester

CHEM1201
General Chemistry I....3
CHEM1203
General Chemistry Laboratory I....1
EGTG2210
Technical Communications....3
EGTG2215
Circuits I....3
EGTG2221
Statics....3
MATH2202
Calculus II....4
Total....17

4th Semester

EGTE2216
Circuits II....3
EGTG2228
Strength of Materials....3

Credits

EGTG2286
Digital System Design....2
EGTG4221
Engineering Statistics and Reliability....3
ENGR1204
Programming Languages in Engineering....3
UNIV2001
Cross-cultural Perspectives....3
Total....18

5th Semester

EENG4375
Electrical Energy Conversion....3
EGTC3261
Estimating I....3
EGTG2265
Electronics I....3
EGTG3211
Materials Technology I....3
EGTG4254
Fluid Mechanics....3
EGTM2232
Mechanical Measurement and Devices....3
Total....18

6th Semester

EGTG3223
Instrumentation....3
EGTG3351
Applied Thermodynamics....3
EGTG3431
Dynamics....3
EGTM2235
Manufacturing Processes....3
ENGR3000
Modern Technologies: Principles, Applications and Impacts....3
Total....15

7th Semester

EGTC4263
Project Management and Control I....3
EGTG4224
Process and Electro/Mechanical Control Systems Technology....3
EGTG4269
Management and Engineering Economics....3
EGTM3248
Mechanical Technology Design I....3
UNIV2002
Global Issues....3
Total....15

8th Semester Credits

EGTG4225
Industrial Automation.....3
EGTM3250
Mechanical Technology Design II.....3
EGTM4356
Stress and Vibration Analyses.....3
EGTM4386
Mechanical Technology Design Project.....1
Technical Electives* 6
Total.....16

*Mechanical Engineering Technology Electives**

CHEM1202 General Chemistry II with
CHEM1204 General Chemistry Laboratory II
EGTC4260 Contracts and Specifications
EGTC4264 Project Management and Control II
EGTE4047 Optical Technology I
EGTE4049 Optical Technology II
EGTG4340 Manufacturing Systems
EGTM4040 Heating, Ventilation and Air Conditioning
EGTM4041 Heating, Ventilation and Air Conditioning and Refrigeration Controls

Other technical electives may be taken with prior approval from a program adviser. The only courses eligible are junior- and senior-level courses in University College.

Mechanical Engineering Technology Minor

(For Non-Mechanical Engineering Technology Majors)

The minor in mechanical engineering technology consists of 15 credits, and it is relevant to students with appropriate mathematics and science backgrounds. This minor provides students in other fields of study with the fundamental aspects of mechanical engineering technology, and it can bring them additional employment opportunities and career options. The courses for a minor in mechanical engineering technology within University College are as follows:

Required Courses (12 credits)

Credits

EGTM2232
Mechanical Measurement and Devices.....3
EGTM2235
Manufacturing Processes.....3
EGTM3248
Mechanical Technology Design I.....3
EGTM3250
Mechanical Technology Design II.....3

Elective (3 credits)*

One course must be chosen from the following:

EGTG2221
Statics.....3
EGTG2228
Strength of Materials.....3
EGTG3351
Applied Thermodynamics.....3
EGTG3431
Dynamics.....3
EGTG4224
Process and Electro/Mechanical Control Systems Technology.....3
EGTG4225
Industrial Automation.....3
EGTG4254
Fluid Mechanics.....3
EGTM4356
Stress and Vibration Analyses.....3

To take any course in the minor, a student must meet all the prererequisites for that course.

English Language and Literature Major (B.A.)

School of the Humanities

Requirements for the Bachelor of Arts Degree

The school offers a major in English language and literature. The University's basic core curriculum normally requires two semesters of English (writing) of all students, including ENWR1101 Academic Writing and ENWR1102 Academic Research and Writing. Competency in reading, writing and speaking is expected in courses throughout the University. Students revealing serious deficiencies will be assigned to appropriate courses. Students planning to major in English language and literature are required to complete the liberal arts core curriculum and 36 credits in either literature or writing. Qualified students may complete part of their undergraduate degree requirements at Wroxton College in England.

Required Major Courses (18 credits)

Credits

ENGL2000
Literary Analysis* 3
ENGL2203
British Literature I
or
ENGL2204
British Literature II.....3
ENGL3357
Shakespeare I
or
ENGL3358
Shakespeare II.....3
ENGL3369
American Literature I
or
ENGL3370
American Literature II.....3

**Up to 6 credits of work experience may be used in place of technical electives.*

**With the approval of an academic adviser, students may take other high-level, relevant technical courses as elective.*

**Ideally, ENGL2000 Literary Analysis should be taken during the sophomore year or in the fifth semester at the latest.*

English Language and Literature

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

One Global/World Literature Class
(Choose one course from the list below.)

Credits

ENGL2201
Masterpieces of World Literature I.....3
ENGL2202
Masterpieces of World Literature II.....3
ENGL3384
Postcolonial Literature.....3
ENGL3387
Special Topics in World Literature.....3
ENGL3389
The Global Novel.....3
ENGL3392
International Literature.....3
ENGL3396
South-African Literature, Sex, Politics.....3
ENGL3399
Continental Drift: Sex, Gender and and Family in the South Asian Diaspora.....3
ENGL3430
Contemporary African Literature.....3
ENGL4436
Nobel Prize: Authors.....3
ENGL4445
Caribbean Literature.....3

One Pre-1800 Literature Class
(Choose one course from the list below.)

ENGL3351
Medieval Literature.....3
ENGL3353
Chaucer.....3
ENGL3355
Renaissance Literature.....3
ENGL3359
17th-century Literature.....3
ENGL3361
Milton.....3
ENGL3363
18th-century Literature I.....3
ENGL3364
18th-century Literature II.....3

Major Elective Courses (18 credits)

To be taken from the following list:

ENGL1103
English Masters.....3
ENGL1104
American Masters.....3
ENGL2004
Introduction to Fiction.....3
ENGL2005
Introduction to the Short Story.....3
ENGL2140
African-American Literature.....3
ENGL2205
Introduction to Critical Writing I.....3
ENGL2206
Introduction to Critical Writing II.....3

Credits

ENGL2207
Oral and Written Reports.....3
ENGL2357
Introduction to Irish Literature.....3
ENGL3007
Major British Writers I.....3
ENGL3008
Major British Writers II.....3
ENGL3024
Studies in Poetry.....3
ENGL3044
The Environment in Literature and Culture.....3
ENGL3047
American Nature Writers.....3
ENGL3049
Major American Writers I.....3
ENGL3050
Major American Writers II.....3
ENGL3053
Shakespeare and Film.....3
ENGL3056
Modernism.....3
ENGL3060
Post-modern Literature.....3
ENGL3076
Special Stories — Super Cinema.....3
ENGL3131
20th-century American Worker in Literature.....3
ENGL3200
English Grammar.....3
ENGL3307
20th-century Literature.....3
ENGL3315
American Jewish Novel.....3
ENGL3317
Women in Literature.....3
ENGL3321
Psychological Fiction.....3
ENGL3322
Psychological Novel II.....3
ENGL3323
Advanced Composition.....3
ENGL3325
Creative Writing I (Fiction).....3
ENGL3326
Creative Writing II (Fiction).....3
ENGL3327
Creative Writing I (Poetry).....3
ENGL3328
Creative Writing II (Poetry).....3
ENGL3329
Advanced English Grammar.....3
ENGL3333
Creative Writing I (Nonfiction).....3
ENGL3334
Creative Writing II (Nonfiction).....3

Credits

ENGL3335
Creative Writing I (Scriptwriting).....3
ENGL3336
Creative Writing II (Scriptwriting).....3
ENGL3337
Creative Writing I (Cross-genre).....3
ENGL3338
Creative Writing II (Cross-genre).....3
ENGL3365
The Romantic Era I.....3
ENGL3366
The Romantic Era II.....3
ENGL3367
The Victorian Era I.....3
ENGL3368
The Victorian Era II.....3
ENGL3371
Modern Novel I.....3
ENGL3372
Modern Novel II.....3
ENGL3373
Modern Poetry I.....3
ENGL3374
Modern Poetry II.....3
ENGL3375
Modern Drama I.....3
ENGL3376
Modern Drama II.....3
ENGL3377
The Bible and Its Influence.....3
ENGL3380
Literature of War.....3
ENGL3381
Popular Fiction.....3
ENGL3382
Special Topics in Black Literature.....3
ENGL3383
Ethnic Literature in the United States....3
ENGL3386
Special Topics in British or American Literature.....3
ENGL3388
Regionalism in American Literature.....3
ENGL3390
Contemporary Fiction I.....3
ENGL3391
Contemporary Fiction II.....3
ENGL3394
Travel Literature.....3
ENGL3409
Glory and Shame: America on Film.....3
ENGL3410
Modern Novels on the Screen.....3

	Credits
ENGL3421 Not of an Age … But for All Time*	3
ENGL3422 "The Play's the Thing"*	3
ENGL3424 "To Hold the Mirror Up to Nature"*	3
ENGL3451 The Art of the Short Story	3
ENGL3456 20th-century Drama*	3
ENGL3463 England's Green and Pleasant Land*	3
ENGL3466 Three 19th-century Writers*	3
ENGL3467 18th-century Literature*	3
ENGL3600 Literary Basics	3
ENGL4403 Writing Seminar I	3
ENGL4404 Writing Seminar II	3
ENGL4420 Contemporary Psychological Novel	3
ENGL4433 Selected Studies in English and American Literature	3
ENGL4447 "The Tempest:" Music Rich and Strange	3
ENGL4470 Literature of Evil	3
ENGL4498 Internship	3
ENGL4700 The Eternal Search/Struggle for Identity	3
ENGW3002 Creative Writing I*	3

Creative Writing Minor

This 15-credit minor enables students to express themselves by writing scripts, fiction, poetry and nonfiction. Since creative writing improves writing skills in general, all students will benefit from the minor in creative writing. Students in the minor will study works of literature to understand the expectations of the genres. Additionally, by writing in workshop settings, students will learn what makes fiction, poetry, scriptwriting and creative nonfiction both distinctive and unique. All students selecting the creative writing minor must take at least nine credits of creative writing courses from the following list. The remaining six credits can be fulfilled with any additional creative writing courses or any literature course offered in the School of the Humanities:

	Credits
ENGL3325 Creative Writing I (Fiction)	3
ENGL3326 Creative Writing II (Fiction)	3
ENGL3327 Creative Writing I (Poetry)	3
ENGL3328 Creative Writing II (Poetry)	3
ENGL3333 Creative Writing I (Nonfiction)	3
ENGL3334 Creative Writing II (Nonfiction)	3
ENGL3335 Creative Writing I (Scriptwriting)	3
ENGL3336 Creative Writing II (Scriptwriting)	3
ENGL3337 Creative Writing I (Cross-genre)	3
ENGL3338 Creative Writing II (Cross-genre)	3

English Language and Literature Minor

The minor in English language and literature invites students to explore the literatures of the world and offers students opportunities to increase their critical and creative writing skills. A minor in English language and literature also will help students cultivate the critical thinking and reading skills needed for many professions. Students choose 15 credits of English courses at the intermediate level or above (beyond those taken to satisfy general education requirements).

Program requirements:

British Literature Course	3
American Literature Course	3
World Literature Course	3
English Literature Electives	6

**Offered at Wroxton College, England.*

Fine Arts Major (B.A.)

School of Art and Media Studies

The school offers a Bachelor of Arts in fine arts that is designed for students with a broad range of interests in art. A selection of music courses is offered to service the core requirements of the University.

Minors for non-fine arts majors are offered in art (computer animation, computer graphics, digital media for advertising, digital tools for social media, fine arts techniques and printmaking) (see B.A. in art) and theater.

Requirements for the Bachelor of Arts Degree

Students majoring in fine arts as a general degree program must complete 36 credits of major requirements (6 credits in art history, 6 credits in music, 6 credits in theater) and 18 credits of major elective courses (including 3 credits in computer art) in addition to 22 credits of free electives. It is recommended that students interested in this general degree consult with the school as to a specific course sequence.

Theater Minor

(For Non-Fine Arts Majors)

A minor in theater for non-fine arts majors consists of 18 credits beyond the core.

	Credits
THEA1103 Introduction to Theater	3
THEA2205 Acting: Theory and Practice I	3
THEA2211 Stagecraft	3
Theater or Speech Electives	9

Interested students should consult with the school director for further information.

Health Information Management

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

Health Information Management Major (B.S.H.I.M.)

Henry P. Becton School of Nursing and Allied Health

(In partnership with FDU and the Rutgers School of Health Related Professions [Rutgers SHRP])

Completion of this program will result in a Bachelor of Science in Health Information Management awarded jointly by FDU and the Rutgers School of Health Related Professions (Rutgers SHRP). The program is designed as a 2+2 program, with the first two years spent at FDU and the last two years spent at Rutgers SHRP.

The health information manager is a member of the health care system and is the person responsible for the management of health information systems consistent with medical, administrative, ethical and legal requirements. Health information professionals collect, analyze and utilize data to provide information critical to the health care industry. A Registered Health Information Administrator (RHIA) collects many kinds of data from a variety of sources, monitors the integrity of the information, measures appropriate access to health records and manages the analysis and use of this data.

Students must complete 67 preprofessional credits during their first two years at FDU before applying for acceptance to the professional component at Rutgers SHRP for their last two years.

Admission Requirements

Admission to the professional component at Rutgers SHRP requires:

• A separate application in the fall semester of the student's sophomore year.

• Admission decisions for the professional component are made in accordance with criteria, policies and procedures established by a joint Committee on Admissions and Academic Status and cannot be guaranteed by FDU.

• Students admitted to the B.S. in Health Information Management major must maintain a minimum grade point ratio of 2.75 in their preprofessional course work.

Upon successful completion of all course work, graduates will receive a Bachelor of Science in Health Information Management (B.S.H.I.M.) with eligibility for national certification and state licensure, where applicable.

Requirements for the Bachelor of Science in Health Information Management Degree

1st Semester	Credits
CHEM1107, CHEM1117 Chemistry for Health Sciences (Lecture and Laboratory)	4
CSCI1105 Survey of Computers and Computer Software	3
ENWR1101 Academic Writing	3
MATH1105 College Algebra	4
PSYC1103 General Psychology	3
UNIV1001 Transitioning to University Life	1
Total	18

2nd Semester	
ACCT2021 Introductory Financial Accounting	3
BIOL2125, BIOL2126 Microbiology for the Healh Sciences (Lecture and Laboratory)	4
ENWR1102 Academic Research and Writing	3
PSYC2201 Statistics	3
SPCH1155 Public Speaking	3
UNIV1002 Preparing for Professional Life	1
Total	17

3rd Semester	
BIOL2203, BIOL2223 Human Anatomy and Physiology I (Lecture and Laboratory)	4
MEDT4301 American Health Care	3
NURS3208 Introduction to Health Care Economics	3
UNIV2001 Cross-cultural Perspectives	3
Computer Science/Management Information Systems Elective	3
Total	16

4th Semester	Credits
BIOL2204, BIOL2224 Human Anatomy and Physiology II (Lecture and Laboratory)	4
MEDT1130 Bioethics	3
MEDT4302 Health Care Law and Policy	3
UNIV2002 Global Issues	3
Computer Science/Management Information Systems Elective	3
Total	16

After completion of 67 credits at FDU, the program is completed at the Rutgers School of Health Related Professions (Rutgers SHRP) (61 credits). With successful completion of the program at Rutgers SHRP, the student will earn the B.S. in Health Information Management.

Health Studies Major (B.S.H.S.)

Henry P. Becton School of Nursing and Allied Health

The Bachelor of Science in Health Studies (B.S.H.S.) Program is designed to prepare graduates with an understanding of a wide range of health-related concepts including: diseases and their causes, distributions of diseases, risk factors and prevention, behavior change theory and application and evidence-based practice. The health science program is unique in that it offers a strong emphasis on problem-solving skills and critical thinking while providing a solid foundation of general education, health-related science and in-depth perspectives in health and health care delivery.

The program offers a comprehensive curriculum with two tracks designed to educate students in health, wellness and the prevention of disease leading to entry-level positions in diverse health-care agency settings. The program will prepare graduates for future graduate study.

Curriculum

The B.S. in Health Studies program has two tracks: a **general track** for those students who plan to work in a health care field and are not interested in pursuing advanced degrees that require more intensive science prerequisites; and a **science track** for students who plan to go on for graduate studies in medicine, dentistry, physical therapy, occupational therapy, physician assistant, health administration or other graduate programs.

General Track

General Education (74 credits)

	Credits
BIOL1251, BIOL1253 General Biology I (Lecture and Laboratory)	4
BIOL1252, BIOL1254 General Biology II (Lecture and Laboratory)	4
BIOL2125, BIOL2126 Microbiology for Health Sciences (Lecture and Laboratory)	4
BIOL2203, BIOL2223 Human Anatomy and Physiology I (Lecture and Laboratory)	4
BIOL2204, BIOL2224 Human Anatomy and Physiology II (Lecture and Laboratory)	4
CHEM1107, CHEM1117 Chemistry for Health Sciences (Lecture and Laboratory)	4
COMM2101 Professional Communication	3
CSCI1105 Survey of Computers and Computer Software	3
ENWR1101 Academic Writing	3
ENWR1102 Academic Research and Writing	3
MATH1105 College Algebra	4
MATH1107 Precalculus	4
MEDT1130 Bioethics	3
PSYC1103 General Psychology	3
PSYC2201 Statistics	3
SOCI1101 Introductory Sociology	3
SPAN1111 Spanish for Health Personnel	3
SPCH1155 Public Speaking	3
English Literature Course	3
History Course	3
Electives	6

Core Requirements (8 credits)

	Credits
UNIV1001 Transitioning to University Life	1
UNIV1002 Preparing for Professional Life	1
UNIV2001 Cross-cultural Perspectives	3
UNIV2002 Global Issues	3

Major Requirements (38 credits)

	Credits
MEDT4301 American Health Care Systems	3
MEDT4302 Health Care Law and Policy	3
MEDT4303 Global Health	3
MEDT4307 Health Studies Practicum	3
MGMT2600 Organizational Behavior	3
MGMT3700 Human Resources Management	3
NURS2110 Pathophysiology	3
NURS2217 Information Systems and Applications in Health	3
NURS3208 Health Care Economics	3
NURS3351 Epidemiology in Health Care	3
NURS3353 Introduction to Normal and Therapeutic Nutrition	3
NURS4420 Health Care Management	3
NURS4430 Nursing Research	3
Total	120

Science Track

General Education (79 credits)

	Credits
BIOL1251, BIOL1253 General Biology I (Lecture and Laboratory)	4
BIOL1252, BIOL1254 General Biology II (Lecture and Laboratory)	4
BIOL2125, BIOL2126 Microbiology for Health Sciences (Lecture and Laboratory)	4
BIOL2203, BIOL2223 Human Anatomy and Physiology I (Lecture and Laboratory)	4
BIOL2204, BIOL2224 Human Anatomy and Physiology II (Lecture and Laboratory)	4
CHEM1201, CHEM1203 General Chemistry I (Lecture and Laboratory)	4
CHEM1202, CHEM1204 General Chemistry II (Lecture and Laboratory)	4
CHEM2261, CHEM2263 Organic Chemistry I (Lecture and Laboratory)	5
CSCI1105 Survey of Computers and Computer Software	3
ENWR1101 Academic Writing	3
ENWR1102 Academic Research and Writing	3
MATH1107 Precalculus	4
MATH1201 Calculus I	4
MEDT1130 Bioethics	3

History • Humanities

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

	Credits
PHYS2201, PHYS2203 University Physics I (Lecture and Laboratory)	4
PHYS2202, PHYS2204 University Physics II (Lecture and Laboratory)	4
PSYC1103 General Psychology	3
PSYC2201 Statistics	3
SPAN1111 Spanish for Health Personnel	3
SPCH1155 Public Speaking	3
English Literature Course	3
History Course	3

Core Requirements (8 credits)

UNIV1001 Transitioning to University Life	1
UNIV1002 Preparing for Professional Life	1
UNIV2001 Cross-cultural Perspectives	3
UNIV2002 Global Issues	3

Major Requirements (33 credits)

MEDT4301 American Health Care Systems	3
MEDT4302 Health Care Law and Policy	3
MEDT4303 Global Health	3
MEDT4307 Health Studies Practicum	3
MGMT2600 Organizational Behavior	3
MGMT3700 Human Resources Management	3
NURS2110 Pathophysiology	3
NURS3208 Health Care Economics	3
NURS3351 Epidemiology in Health Care	3
NURS4420 Health Care Management	3
NURS4430 Nursing Research	3
Total	120

History Major (B.A.)

School of the Humanities

Requirements for the Bachelor of Arts Degree

Besides completing the general education requirements of University College: Arts • Sciences • Professional Studies, which for history majors include HIST2106 Ethical Issues in History, undergraduate history majors must complete 36 credits of history course work. At least 6 credits must be at the HIST1000 level, at least 9 credits must be at the HIST3000 level and 3 credits must be for either HIST4400 Senior Research Seminar or HIST4401 Honors History.

History Minor

(For Non-History Majors)

Undergraduate students who take a major in something other than history may take a minor in history. The minor requires 15 credits of history course work. No more than 6 credits may be at the 1000 level, and at least 6 credits must be at either the 3000 level or the 4000 level. History courses taken to satisfy general education requirements may count toward the history minor as well. The total number of credits required for the B.A., however, remains 120.

Combined Five-year B.A./M.P.A. Program

For the combined B.A. in history/M.P.A. degree program, see page 211.

Humanities Major (B.A.)

School of the Humanities

The Bachelor of Arts (B.A.) in humanities is an innovative major that allows students to explore the perspectives of and connections among multiple disciplines, including history, philosophy, literature, art and the humanistic social and behavioral sciences.

The humanities major offers more flexibility and choice in course selection than most other majors, allowing students to explore a wide range of subjects while developing crucial skills. Through studies in the humanities major, students will be helped to think clearly and critically about issues that confront human beings throughout the course of their personal and professional lives. The study of humanities encourages students to be intellectually curious and courageous, to work both cooperatively and independently, to form new connections and to master the skills of analysis, problem solving, interpretation, research methodology, effective communication and imagination.

The humanities major provides an interdisciplinary learning experience with career orientation as its main focus. This program allows students through their self-designed curriculum to gain the skills and knowledge needed to attain their educational goals within a liberal arts framework.

A humanities major must choose a 24-credit "primary concentration" in a broad interdisciplinary area such as American studies, British studies, digital humanities, global and cultural studies, liberal studies or sustainability. In addition, a choice of interdisciplinary humanities seminars (6 credits) will help students integrate the perspectives of the disciplines they study.

Requirements for the Bachelor of Arts Degree

The degree requirements include:

- 3 credits PHIL1000 The Life of the Mind;
- 6 credits of humanities seminars (HUMN2000 and above);
- 24 credits in a concentration; and
- 3 credits of a humanities capstone seminar (HUMN3000 and above).

Humanities

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

Primary Concentrations

Each student chooses a primary concentration.

American Studies Concentration

This 24-credit concentration explores the culture, history, literature and politics of the United States. In addition, through this concentration, students develop a deeper understanding of the status of the contemporary United States and its place in the world today. The following courses count toward this concentration:

	Credits
ENGL2140 African-American Literature	3
ENGL3369 American Literature I	3
ENGL3370 American Literature II	3
ENGL3383 Ethnic Literature in the United States	3
ENGL3409 Glory and Shame: America on Film	3
HIST1114 U.S. History to 1865	3
HIST1115 U.S. History Since 1865	3
HIST2102 Sports in America	3
HIST2104 United States Social and Cultural History	3
HIST2107 U.S. Economic History	3
HIST3101 American Immigration	3
HIST3102 Race in America	3
HIST3104 U.S. Diplomatic History	3
HIST3105 U.S. Environmental History	3
HIST3106 Culture and Technology in American History	3
HIST3107 U.S. Constitutional History	3
HIST3120 Colonial and Revolutionary America	3
HIST3123 The U.S. Civil War and Reconstruction	3
HIST3129 U.S. History 1890–1945	3
HIST3130 U.S. History Since 1945	3
HUMN2443/PHIL2443 African-American Political Thought	3
HUMN3221 Coming of Age in America	3
MUSIC1108 From Elvis to J. Lo: Pop Music of the Past 50 Years	3
PHIL1105/RELI1105 World Religions in America	3
POLS2251 Foreign Policy of the United States	3
POLS2253 American Government	3
POLS3312 The American Congress	3
POLS3349 African-American Politics	3

Other selected classes may be approved by a humanities faculty adviser.

British Studies Concentration

This 24-credit concentration is ideal for students who wish to or have already spent time at FDU's Wroxton College in England. Specifically, the British studies concentration offers students knowledge and insight into the culture, history, literature and politics of England. In addition, through this concentration, students develop a deeper understanding of the status of contemporary England and its place in the world today. The following courses count toward this concentration:

	Credits
ART3415 The Development of British Painting in Britain and North America*	3
COMM3026 Communication: Culture and the Media in Britain*	3
ENGL2203 British Literature I	3
ENGL2204 British Literature II	3
ENGL3351 Medieval Literature	3
ENGL3353 Chaucer	3
ENGL3355 Renaissance Literature	3
ENGL3357 Shakespeare I	3
ENGL3358 Shakespeare II	3
ENGL3359 17th-century Literature	3
ENGL3361 Milton	3
ENGL3363 18th-century Literature	3
ENGL3365 The Romantic Era I	3
ENGL3367 The Victorian Era I	3
ENGL3421 Not of an Age … But for All Time*	3
ENGL3422 "The Play's the Thing"*	3
ENGL3463 England's Green and Pleasant Land*	3
ENGL3466 Three 19th-century Writers*	3
ENGL3467 18th-century Literature*	3
ENGL4447 "The Tempest:" Music Rich and Strange	3
HIST3422 Britain in the Modern Era*	3
HUMN4409 The British Imagination: From King Arthur to Harry Potter	3
INTER3430 The Anatomy of Contemporary Britain*	3
POLS3450 British Government and Politics*	3
POLS3454 Descent from Power: British Foreign Policy Since 1900*	3
POLS3456 The Power and Personality of the British Prime Minister*	3
SOCI3440 Women and Race in Modern Britain*	3
SOCI3445 Social Policy in Contemporary Britain*	3

Other selected classes may be approved by a humanities faculty adviser.

**Offered at Wroxton College, England.*

Digital Humanities Concentration

This 24-credit concentration is designed for students interested in learning the essentials of digital production (e.g., graphic design, web design, photography and film) as well as digital studies (media studies, the impact of technology on society). As technology becomes increasingly intertwined with everyone's lives, it has become more important to possess not only an understanding of computing but to learn how to effectively utilize computer technologies in professional and personal

**Offered at Wroxton College, England.*

Humanities

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

lives as well as to understand how these same technologies can help shape lives for better or worse. With a growing number of positions in the field of information technology and projected shortage of information technologists, a digital humanities concentration can help students become more competitive in the job market. The following courses count toward this concentration:

	Credits
ART1174 Desktop Publishing I	3
ART1177/COMM1177 Introduction to Digital Media	3
ART1178 Multimedia on the Internet	3
ART1179 Digital Illustration and Design	3
ART1192 Digital Photography I	3
ART1843 Design for the Web	3
ART2275 Computer Animation II	3
ART2294 2-D Computer Animation	3
ART2295 3D Computer Animation	3
CRIM2235 Cyber Crime	3
CSCI1105 Survey of Computers and Computer Software	3
ENGR3000 Modern Technologies: Principles, Applications and Impacts	3
HUMN2444/PHIL2444 Technology and Its Critics	3
HUMN3041/INTER3041 Technology and Values	3
HUMN3350 Social Life On and Off the Internet	3
INFO1101 Computer Concepts and Technology	3
INFO1201 Information Technology	3
INFO3205 Digital Media Publishing	3
PHIL3310 Human Perspectives in a Computerized Society	3

Other selected classes may be approved by a humanities faculty adviser.

Global and Cultural Studies Concentration

This 24-credit concentration is designed for students who have an interest in global or popular cultures. As the workplace has become increasingly globalized, it has become especially important for professionals, regardless of the career they enter, to gain a developed understanding and knowledge of diverse cultures, nations and people. Students who choose this concentration will be able to choose from courses that emphasize a deeper understanding of media and popular culture and courses that investigate international cultures and communities. The following courses count toward this concentration:

	Credits
AFST1101 Africa and Africans I: History and Traditions	3
AFST1102 Africa and Africans II: Communities and Culture	3
COMM1101 Mass Media: Image, Sound and Text	3
COMM1105 Intercultural Communication	3
COMM2102 International Communication	3
COMM2104 Language, Culture and Communication	3
COMM2210 Popular Culture and the Media	3
COMM2415 Sports and Popular Culture	3
COMM3102 Media, History and Society	3
COMM4468/HUMN4468 Bollywood and Beyond: India in Film	3
ENGL3381 Popular Fiction	3
ENGL3382 Special Topics in Black Literature	3
ENGL3383 Ethnic Literature in the United States	3
ENGL3384 Postcolonial Literature	3
ENGL3389 The Global Novel	3
ENGL3392 International Literature	3
ENGL3396 South-African Literature, Sex, Politics	3
ENGL3399/HUMN3399 Continental Drift: Sex, Gender and Family in the South Asian Diaspora	3
ENGL3430 Contemporary African Literature	3
ENGL4445 Caribbean Literature	3
HIST2245 Islamic History	3
HIST3102 Race in America	3
HIST3202 Middle East	3
HIST3360 Modern African History	3
HUMN2440/PHIL2440 Human Rights	3
HUMN2443/PHIL2443 African-American Political Thought	3
HUMN2454 Music, Power and Freedom	3
HUMN2456 Dissent in Popular Culture: From Inception to Iraq	3
HUMN3220 Political and Social History of Music	3
HUMN3221 Coming of Age in America	3
HUMN3307 Slavery and Global Ethics	3
HUMN3316/RELI3316 Babylon the Great: Culture, Religion and Conflict in Iraq	3
HUMN3396 South-African Literature	3
LANG2201 Cultural Awareness and Languages	3
PHIL2321 African Philosophy	3
POLS2206 American Minority Politics	3
POLS3324 American Minority Groups	3
POLS3349 African-American Politics	3
POLS3363 Middle East Politics	3
POLS3364 Middle East in World Affairs	3
POLS3367 Africa in World Affairs I	3
POLS3368 Africa in World Affairs II	3
POLS4463 Political and Economic Challenges in Africa	3

Other selected classes may be approved by a humanities faculty adviser.

Humanities

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

Liberal Studies Concentration

This 24-credit concentration offers the maximum amount of choice and variety for students seeking a solid academic grounding in multiple disciplines. As such, it is particularly suited for adult learners or for students pursuing careers in elementary education who can benefit from a broad background in multiple disciplines within the humanities and humanistic social sciences fields such as art history, communications, English, history, music, philosophy, political science, religion, sociology and theater. The following courses count toward this concentration:

Art History Courses

ART1120 Modern Art to Mid-century
ART1131 History of Graphic Design and Illustration
ART1133 History of Photography
ART2238 The Global Art World

Communication, English, History, Humanities, Language, Music, Philosophy, Political Science, Religion, Sociology, Theater Courses

COMM2000 or above
ENGL2000 or above
HIST2000 or above
HUMN2000 or above
LANG2000 or above
MUSIC1000 or above
PHIL1000 or above
POLS2000 or above
RELI1000 or above
SOCI1000 or above
THEA1000 or above

Sustainability Concentration

This 24-credit concentration provides students with a solid foundation in the growing field of sustainability, which includes the impact and long-term viability of environmentalism, social justice, ecology, health sciences, marine biology and food production, among other areas. As an increasing number of businesses, nonprofit organizations and educational institutions commit to "green" lifestyles and practices, FDU humanities graduates who choose this concentration place themselves in a particularly competitive position in the job market. This concentration is also augmented by the Career Development Center, which can help students get internships with various local environmental and sustainability-focused groups. The following courses count toward this concentration:

Required Course (3 credits)

	Credits
BIOL1001, BIOL1011 Principles of Modern Biology (Lecture and Laboratory)	3

Other Courses (21 credits)

	Credits
BIOL1105, BIOL1115 The Human Environment (Lecture and Laboratory)	3
BIOL2250, BIOL2150 Ecology and Field Biology (Lecture and Laboratory)	3
ENGL3044 The Environment in Literature and Culture	3
ENGL3047 American Nature Writers	3
ENVR1001, ENVR1002 Introduction to Environmental Science (Lecture and Laboratory)	3
ENVR1205, ENVR1215 The Great Pacific Northwest: Environmental Issues and Cultural Perspectives (Lecture and Laboratory)	3
HIST3105 U.S. Environmental History	3
HUMN2447 Ecology for Life: Building a Lifestyle for a Sustainable Planet	3
MBIO1118, MBIO1128 Beach Ecology (Lecture and Laboratory)	3
MBIO1209, MBIO1219 Introduction to Marine Biology (Lecture and Laboratory)	4
PHIL3311 The Ethics of Food	3
POLS3011 Human Rights in Global Environment	3
SOCI3318 Health and Society: Access and Issues	3

Other selected classes may be approved by a humanities faculty adviser.

Minors (For Non-majors)

American Studies Minor

This 15-credit minor explores the culture, history, literature and politics of the United States. In addition, through this minor, students develop a deeper understanding of the status of the contemporary United States and its place in the world today. The following courses count toward this minor:

	Credits
ENGL2140 African-American Literature	3
ENGL3369 American Literature I	3
ENGL3370 American Literature II	3
ENGL3383 Ethnic Literature in the United States	3
ENGL3409 Glory and Shame: America on Film	3
HIST1114 U.S. History to 1865	3
HIST1115 U.S. History Since 1865	3
HIST2102 Sports in America	3
HIST2104 United States Social and Cultural History	3
HIST2107 U.S. Economic History	3
HIST3101 American Immigration	3
HIST3102 Race in America	3
HIST3104 U.S. Diplomatic History	3
HIST3106 Culture and Technology in American History	3
HIST3107 U.S. Constitutional History	3
HIST3120 Colonial and Revolutionary America	3
HIST3123 The U.S. Civil War and Reconstruction	3
HUMN2443/PHIL2443 African-American Political Thought	3
HUMN3221 Coming of Age in America	3
MUSIC1108 From Elvis to J. Lo: Pop Music of the Past 50 Years	3
PHIL1105/RELI1105 World Religions in America	3
POLS2251 Foreign Policy of the United States	3
POLS2253 American Government	3
POLS3312 The American Congress	3
POLS3349 African-American Politics	3

Other selected classes may be approved by a humanities faculty adviser.

Humanities

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

British Studies Minor

This 15-credit minor is ideal for students who wish to or have already spent time at FDU's Wroxton College in England. Specifically, the British studies minor offers students knowledge and insight into the culture, history, literature and politics of England. In addition, through this minor, students develop a deeper understanding of the status of contemporary England and its place in the world today. The following courses count toward this minor:

	Credits
ART3415 The Development of British Painting in Britain and North America*	3
COMM3026 Communication: Culture and the Media in Britain*	3
ENGL2203 British Literature I	3
ENGL2204 British Literature II	3
ENGL3351 Medieval Literature	3
ENGL3353 Chaucer	3
ENGL3355 Renaissance Literature	3
ENGL3357 Shakespeare I	3
ENGL3358 Shakespeare II	3
ENGL3359 17th-century Literature	3
ENGL3361 Milton	3
ENGL3363 18th-century Literature	3
ENGL3365 The Romantic Era I	3
ENGL3367 The Victorian Era I	3
ENGL3421 Not of an Age … But for All Time*	3
ENGL3422 "The Play's the Thing"*	3
ENGL3463 England's Green and Pleasant Land*	3
ENGL3466 Three 19th-century Writers*	3
ENGL3467 18th-century Literature*	3
ENGL4447 "The Tempest:" Music Rich and Strange	3
HIST3422 Britain in the Modern Era*	3
HUMN4409 The British Imagination: From King Arthur to Harry Potter	3
INTER3430 The Anatomy of Contemporary Britain*	3
POLS3450 British Government and Politics*	3
POLS3454 Descent from Power: British Foreign Policy Since 1900*	3
POLS3456 The Power and Personality of the British Prime Minister*	3
SOCI3440 Women and Race in Modern Britain*	3
SOCI3445 Social Policy in Contemporary Britain*	3

Other selected classes may be approved by a humanities faculty adviser.

**Offered at Wroxton College, England.*

Digital Humanities Minor

This 15-credit minor is designed for students interested in learning the essentials of digital production (e.g., graphic design, web design, photography and film) as well as digital studies (media studies, the impact of technology on society). As technology becomes increasingly intertwined with everyone's lives, it has become more important to possess not only an understanding of computing but to learn how to effectively utilize computer technologies in professional and personal lives as well as to understand how these same technologies can help shape lives for better or worse. With a growing number of positions in the field of information technology and projected shortage of information technologists, a digital humanities minor can help students become more competitive in the job market. The following courses count toward this minor:

	Credits
ART1174 Desktop Publishing I	3
ART1177/COMM1177 Introduction to Digital Media	3
ART1178 Multimedia on the Internet	3
ART1179 Digital Illustration and Design	3
ART1192 Digital Photography I	3
ART1843 Design for the Web	3
ART2275 Computer Animation II	3
ART2294 2-D Computer Animation	3
ART2295 3D Computer Animation	3
CRIM2235 Cyber Crime	3
CSCI1105 Survey of Computers and Computer Software	3
ENGR3000 Modern Technologies: Principles, Applications and Impacts	3
HUMN2444 Technology and Its Critics	3
HUMN3041/INTER3041 Technology and Values	3
HUMN3350 Social Life On and Off the Internet	3
INFO1101 Computer Concepts and Technology	3
INFO1201 Information Technology	3
INFO3205 Digital Media Publishing	3
PHIL2444 Technology and Its Critics	3
PHIL3310 Human Perspectives in a Computerized Society	3

Other selected classes may be approved by a humanities faculty adviser.

**Offered at Wroxton College, England.*

Global and Cultural Studies Minor

This 15-credit minor is designed for students who have an interest in global or popular cultures. As the workplace has become increasingly globalized, it has become especially important for professionals, regardless of the career they enter, to gain a developed understanding and knowledge of diverse cultures, nations and people. Students who choose this minor will be able to choose from courses that emphasize a deeper understanding of media and popular culture and courses that investigate international cultures and communities. The following courses count toward this minor:

	Credits
AFST1101 Africa and Africans I: History and Traditions	3
AFST1102 Africa and Africans II: Communities and Culture	3
COMM1101 Mass Media: Image, Sound and Text	3

Humanities

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

	Credits
COMM1105 Intercultural Communication	3
COMM2102 International Communication	3
COMM2104 Language, Culture and Communication	3
COMM2210 Popular Culture and the Media	3
COMM2415 Sports and Popular Culture	3
COMM3102 Media, History and Society	3
COMM4468/HUMN4468 Bollywood and Beyond: India in Film	3
ENGL3381 Popular Fiction	3
ENGL3382 Special Topics in Black Literature	3
ENGL3383 Ethnic Literature in the United States	3
ENGL3384 Postcolonial Literature	3
ENGL3389 The Global Novel	3
ENGL3392 International Literature	3
ENGL3396 South-African Literature, Sex, Politics	3
ENGL3399/HUMN3399 Continental Drift: Sex, Gender and Family in the South Asian Diaspora	3
ENGL3430 Contemporary African Literature	3
ENGL4445 Caribbean Literature	3
HIST2245 Islamic History	3
HIST3102 Race in America	3
HIST3202 Middle East	3
HIST3360 Modern African History	3
HUMN2440/PHIL2440 Human Rights	3
HUMN2443/PHIL2443 African-American Political Thought	3
HUMN2454 Music, Power and Freedom	3
HUMN2456 Dissent in Popular Culture: From Inception to Iraq	3
HUMN3220 Political and Social History of Music	3
HUMN3221 Coming of Age in America	3
HUMN3307/PHIL3307 Slavery and Global Ethics	3
HUMN3316/RELI3316 Babylon the Great: Culture, Religion and Conflict in Iraq	3
HUMN3396 South-African Literature	3
LANG2201 Cultural Awareness and Languages	3
PHIL2321 African Philosophy	3
PHIL3307/HUMN3307 Slavery and Global Ethics	3
POLS2206 American Minority Politics	3
POLS3324 American Minority Groups	3
POLS3349 African-American Politics	3
POLS3363 Middle East Politics	3
POLS3364 Middle East in World Affairs	3
POLS3367 Africa in World Affairs I	3
POLS3368 Africa in World Affairs II	3
POLS4463 Political and Economic Challenges in Africa	3

Other selected classes may be approved by a humanities faculty adviser.

Sustainability Minor

This 15-credit minor provides students with a solid foundation in the growing field of sustainability, which includes the impact and long-term viability of environmentalism, social justice, ecology, health sciences, marine biology and food production, among other areas. As an increasing number of businesses, nonprofit organizations and educational institutions commit to "green" lifestyles and practices, FDU humanities graduates who choose this minor place themselves in a particularly competitive position in the job market. This minor is also augmented by the Career Development Center, which can help students get internships with various local environmental and sustainability-focused groups. The following courses count toward this minor:

Required Course (3 credits)	Credits
BIOL1001, BIOL1011 Principles of Modern Biology (Lecture and Laboratory)	3

Other Courses (12 credits)	
BIOL1105, BIOL1115 The Human Environment (Lecture and Laboratory)	3
BIOL2250, BIOL2150 Ecology and Field Biology (Lecture and Laboratory)	3
ENGL3044 The Environment in Literature and Culture	3
ENGL3047 American Nature Writers	3
ENVR1001, ENVR1002 Introduction to Environmental Science (Lecture and Laboratory)	3
ENVR1205, ENVR1215 The Great Pacific Northwest: Environmental Issues and Cultural Perspectives (Lecture and Laboratory)	3
HIST3105 U.S. Environmental History	3
HUMN2447 Ecology for Life: Building a Lifestyle for a Sustainable Planet	3
MBIO1118, MBIO1128 Beach Ecology (Lecture and Laboratory)	3
MBIO1209, MBIO1219 Introduction to Marine Biology (Lecture and Laboratory)	4
PHIL3311 The Ethics of Food	3
POLS3011 Human Rights in Global Environment	3
SOCI3318 Health and Society: Access and Issues	3

Other selected classes may be approved by a humanities faculty adviser.

Information Technology

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

Information Technology Major (B.S.)

Lee Gildart and Oswald Haase School of Computer Sciences and Engineering

The Bachelor of Science in information technology (IT) program, the only program of its kind in Bergen County, N.J., provides students with the comprehensive knowledge, skills and training to pursue careers as IT professionals in one of the most dynamic areas of modern technology. In this exciting and challenging field, information technologists help the general user community solve its IT problems, determine which technologies are most appropriate for its needs and show how to employ these technologies effectively.

Students learn how to evaluate current and emerging technologies; identify user needs; design user-friendly interfaces; apply, configure and manage these technologies; and assess their impacts on individual users, organizations and the environment.

The program emphasizes the practical applications of information technology. It provides students with both the breadth and depth of knowledge in information technology needed for professional success in this field. The curriculum requires the successful completion of 123 credits, which are distributed as follows:

	Credits
Information Technology Core Requirements	54–57
Mathematics, Science and Programming Requirements	28
Liberal Arts Requirements	23
Minor or Concentration	15–18
Total	123

The IT core courses provide students with the integrated, technical knowledge and training in various areas of information technology. Students learn about multimedia technology, the internet, website design, computer-based systems, computer networks, data communications, network security, disaster recovery, databases, application development, programming, management and economics. They also study the influence of information technology on the economy, politics, culture and the global society. Students can avail themselves of the opportunity for a cooperative education experience that provides a paid professional salary, invaluable on-the-job work experience and a maximum of 6 credits earned toward the degree.

The mathematics, science and programming courses provide students with a strong analytical and scientific foundation. The students receive a well-rounded education and a strong foundation for thoughtful global citizenship from the liberal arts courses. The development of strong oral and written communication skills is emphasized throughout the curriculum.

The program enables students to take at least one out of three primary concentrations. The program also allows students sufficient flexibility to concentrate in a secondary area of information technology or to undertake a minor in another discipline. An adviser is assigned to each student in the first year and guides him or her throughout the program. Any concentration areas or minors undertaken by the students must be approved first by the adviser.

Educational Objectives

The educational objectives of the B.S. in information technology program define the career and professional accomplishments that the graduates are being prepared to achieve three to four years after graduation. The program will produce graduates who:

1. Enter into and advance in the profession of information technology, computer science, management information systems, business administration or other related fields.

2. Continue their education by obtaining professional certificates or advanced degrees in information technology, computer science, management information systems, business administration or other related fields.

3. Become responsible professionals and global citizens who are aware of ethical issues and societal needs and problems.

These objectives are consistent with the mission of Fairleigh Dickinson University to educate and prepare students as world citizens through global education. They also fulfill the needs of our constituencies, which include students, alumni, employers, faculty, staff and Industrial Advisory Board.

Requirements for the Bachelor of Science Degree

1st Semester	Credits
CSCI1105 Survey of Computers and Computer Software	3
ENWR1101 Academic Writing	3
INFO1101 Computer Concepts and Technology	3
MATH1105 College Algebra	4
UNIV1001 Transitioning to University Life	1
Total	14

2nd Semester	
ART1177 Introduction to Digital Media	3
ENWR1102 Academic Research and Writing	3
INFO1201 Information Technology	3
MATH1107 Precalculus	4
UNIV1002 Preparing for Professional Life	1
Total	14

3rd Semester	
EGTG2210 Technical Communications	3
INFO2101 Computer Programming for Information Technologists I	3
INFO2105 Internet and Web Applications	3
UNIV2001 Cross-cultural Perspectives	3
Laboratory Science Elective	4
Total	16

4th Semester	
ENGR2286 Digital System Design	3
INFO2102 Computer Programming for Information Technologists II	3
INFO2106 Website Design and Management	3
UNIV2002 Global Issues	3
Laboratory Science Elective	4
Total	16

5th Semester Credits

CSCI2232
Data Structures.....3
ENGR3000
Modern Technologies: Principles, Applications and Impacts.....3
MATH2337
Applied Statistics I.....3
Minor or Concentration Courses.....6
Total.....15

6th Semester

CSCI3268
Database Systems.....3
INFO3201
Human Computer Interface.....3
INFO3205
Digital Media Publishing.....3
INFO4278
Operating Systems*
or
Minor or Concentration Course.....3
Information Technology Elective.....3
Total.....15

7th Semester

ENGR4210
Managerial and Engineering Economic Analysis.....3
INFO4101
Data Communications and Computer Networks I.....3
INFO4201
Information Technology Needs Assessment and Management.....3
MATH2255
Discrete Structures.....3
Minor or Concentration Course.....3
Information Technology Elective.....3
Total.....18

8th Semester

CSCI3274
Linux System Administration.....3
INFO4205
Information Technology Capstone Project.....3
INFO4410
Foundations of Cybersecurity.....3

**Students take either INFO4278 Operating Systems or INFO4844 Programming for the Internet to fulfill the concentration in network and system administration or the concentration in web-development technology, respectively, and a minor. Alternatively, they can take the concentration in security and forensics and another CSCI or INFO course as approved by an academic adviser.*

Credits

INFO4844
Programming for the Internet*
or
Minor or Concentration Course.....3
Minor or Concentration Course.....3
Total.....15

Science Electives

One full-year sequence with laboratories totaling 8 credits to be chosen from:

BIOL1251, BIOL1252
General Biology I, II.....6
BIOL1253, BIOL1254
Laboratory: General Biology I, II.....2
CHEM1201, CHEM1202
General Chemistry I, II.....6
CHEM1203, CHEM1204
General Chemistry Laboratory I, II.....2
PHYS2101, PHYS2102
General Physics I, II.....6
PHYS2201, PHYS2202
Physics Laboratory I, II.....2

Primary Concentrations

Students must complete at least one of the three primary concentration areas: **web-development technology**, **network and system administration** and **security and forensics**. Web-development technology requires students to take INFO4844 Programming for the Internet, while network and system administration requires students to take INFO4278 Operating Systems. All other courses required for each of these two primary concentrations are already included in the BS in information technology curriculum and are listed below. All courses for the security and forensics concentration are also listed below.

Web-development Technology Concentration

The courses for the area of concentration in web-development technology are designed to prepare students in planning and developing professional websites and/or managing an existing website for businesses and e-commerce. Apart from gaining fundamentals of website development, students learn the applications of digital media, effective user-interface design and internet programming. Employment opportunities in business and industries dealing with website design and maintenance abound in the tri-state area. Students must complete 15 credits of required courses and one 3-credit elective to be eligible for a certificate in this area. To take any course in the concentration, a student must meet all the prerequisites for that course.

Required Courses (15 credits)

Credits

ART1177
Introduction to Digital Media.....3
INFO2105
Internet and Web Applications.....3
INFO2106
Website Design and Management.....3
INFO3201
Human Computer Interface.....3
INFO3205
Digital Media Publishing.....3

Elective (3 credits)

INFO4844
Programming for the Internet.....3

Network and System Administration Concentration

The courses for the area of concentration in network and system administration are designed to prepare students to assume responsibilities involving IT system planning, installation and maintenance in business and industries. Students learn the fundamentals of operating systems, networking and information security and obtain hands-on laboratory experience in these subjects. Looking ahead, employment opportunities in network administration are expected to be above average in the overall IT sector. Students must complete 15 credits of required courses and one 3-credit elective to be eligible for a certificate in this area. Moreover, students are encouraged to obtain professional certifications to enhance their career objectives. A number of courses in this concentration may help lead to professional certification in Network+ or Security+. To take any course in the concentration, a student must meet all the prerequisites for that course.

Required Courses (15 credits)

CSCI3274
Linux System Administration.....3
INFO2101
Computer Programming for Information Technologists I.....3

Information Technology

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

Credits

INFO4101
Data Communications and Computer Networks I.....3
INFO4201
Information Technology Needs and Management.....3
INFO4410
Foundations of Cybersecurity.....3

Elective (3 credits)

INFO4278
Operating Systems.....3

Security and Forensics Concentration

The courses for the area of concentration in security and forensics are designed to prepare students in assessing vulnerabilities and risks, cyber defense and gathering digital evidence in case of a cybercrime. The courses in this concentration are developed and administered jointly by the Lee Gildart and Oswald Haase School of Computer Sciences and Engineering and the School of Criminal Justice, Political Science and International Studies. Fairleigh Dickinson University is designated as a Center of Academic Excellence in Cyber Defense Education (CAE-CDE) by the National Security Agency and Department of Homeland Security. As such, the B.S. degree program with security and forensics concentration satisfies all knowledge unit requirements set forth towards this designation. Students must complete 18 credits of required courses to be eligible for a CAE-CDE-designated program-completion certificate. To take any course in the concentration, a student must meet the prerequisite for that course.

Required Courses (15 credits)

CRIM2218
Computer Technologies and Cyber Crime.....3
CRIM3327
File System Forensic Analysis and Investigation.....3
CRIM4010
Computer Forensic, Software and Hardware Applications.....3
CSCI2235
Survey of Computing Security.....3
CSCI3274
Linux System Administration* 3
CSCI3783
Information Security.....3

**Part of B.S. in information technology curriculum.*

Computer Forensics Minor

(For All Majors)

Computer forensics involves the identification, preservation, extraction, interpretation and the documentation of digital evidence in criminal and civil investigations. It is an interdisciplinary minor developed and administered jointly by the Lee Gildart and Oswald Haase School of Computer Sciences and Engineering and the School of Criminal Justice, Political Science and International Studies. The minor, consisting of 15 credits, will provide students with a strong foundation in the knowledge, understanding and competencies sought by prospective employers in the area of computer forensics.

Required Courses (12 credits)

Credits

CRIM2218
Computer Technologies and Cyber Crime.....3
CRIM3327
File System Forensic Analysis and Investigation.....3
INFO1101
Computer Concepts and Technology.....3
INFO4101
Data Communications and Computer Networks I.....3

Elective (3 credits)

CRIM4010
Computer Forensic, Software and Hardware Applications
or
INFO4410
Foundations of Cybersecurity.....3

Information Technology Minor

(For Non-Information Technology Majors)

The minor in information technology consists of 15 credits. It is relevant for students of all majors, and it will help them gain an advantage in the ever-increasing technological demands required for a variety of professions. Students who complete this minor will learn the fundamental aspects of practical applications of information technology. The courses for the minor are as follows:

Required Courses (12 credits)

Credits

CSCI3268
Database Systems.....3
INFO1101
Computer Concepts and Technology.....3
INFO2101
Computer Programming for Information Technologists I.....3
INFO2105
Internet and Web Applications.....3

Elective* (3 credits)

One course must be chosen from the following:
ENGR2286
Digital System Design.....3
INFO2102
Computer Programming for Information Technologists II.....3
INFO3201
Human Computer Interface.....3
INFO4101
Data Communications and Computer Networks I.....3
INFO4201
Information Technology Needs Assessment and Management.....3

To take any course in the minor, a student must meet all the prerequisites for that course.

Website Design and Development Minor/ Certificate

(For Non-Information Technology Majors)

Liberal arts students wishing to pursue a minor and/or a certificate in website design and development must complete 15 credits of courses. Students who complete this minor and/or certificate program will have hands-on learning in social, corporate or individual website design and maintenance. Additionally, such knowledge will be readily applicable to showcase major findings, events and educational materials in any liberal arts and humanities discipline. The courses for the minor and/or certificate in website design and development within University College are as follows:

**With the approval of an academic adviser, students may take other higher-level INFO or CSCI courses as electives.*

Required Courses (12 credits)

	Credits
ART1177 Introduction to Digital Media	3
CSCI1105 Survey of Computers and Computer Software	3
INFO1101 Computer Concepts and Technology	3
INFO2105 Internet and Web Applications	3

Elective Course (3 credits)*

One course must be chosen from the following:

INFO2106 Website Design and Management	3
INFO3201 Human Computer Interface	3
INFO3205 Digital Media Publishing	3

To take any course in the minor and/or a certificate program, a student must meet all the prerequisites for that course.

B.S. in Information Technology/M.S. in Computer Science

Five-year Program

The University offers a five-year program that allows qualified students to attain a Bachelor of Science (B.S.) in information technology and a Master of Science (M.S.) degree in computer science with a combined degree load that is 9 credits less than that for the separate degrees. Students must register for this program by their junior year and must have achieved a cumulative grade point ratio of at least 3.00. See page 234 for details.

**With the approval of an academic adviser, students may take other higher-level INFO or CSCI courses as electives.*

International Affairs Major (B.A.)

School of Criminal Justice, Political Science and International Studies

Requirements for the Bachelor of Arts Degree

In addition to meeting the course requirements of the liberal arts core curriculum of University College, students majoring in international affairs should fulfill the ethical and moral analysis core competency with POLS2606 Ethics and Politics.

Course Requirements

POLS1102 Geography and World Issues
POLS2204 International Relations
POLS2212 International Law
POLS2231 Comparative Government and Politics
and
Either POLS4600 Political Science Seminar or POLS4875 Honors in Political Science

International Affairs Minor

(For Non-International Affairs or Non-Political Science Majors)

The minor in international affairs requires 15 credits of course work.

POLS1102 Geography and World Issues
POLS2204 International Relations
POLS2211 International Organizations
POLS2212 International Law
POLS2231 Comparative Government and Politics

If taken as a general education course, POLS1102 Geography and World Issues will also count toward the minor in international affairs. The total number of credits required for the B.A., however, remains 120.

Marine Biology Major (B.S.)

School of Natural Sciences

The marine biology curriculum fulfills basic requirements for admission into graduate and professional schools. It also may serve as a terminal degree.

The program includes a laboratory field experience where students will have a full semester of warm-water Caribbean field experience. It will consist of three 4-credit marine biology courses and a 3-credit marine biology course for a total of 15 credits. Each of the marine biology courses consists of a lecture and field-based component; the field component is supported by laboratory studies. Typically, a 3-credit, field-based course consists of a one-hour lecture component and an equivalent of four hours of laboratory work. Fieldwork study sites will include reefs, mangroves, sea grass beds and salt marshes. To participate in any field experience, a student must have earned a minimum grade point ratio of 2.25 in biology course work and be in good academic standing with a grade of C- or higher in course work. Further information can be obtained from the school's director.

Students must have a C- or higher in BIOL1251, BIOL1253 General Biology I; BIOL1252, BIOL1254 General Biology II; MBIO1209 Introduction to Marine Biology; and ENVR1111, ENVR1112 Oceanography to take a 2000- or higher-level science course.

The School of Natural Sciences has a strict "C-gate" policy for a number of its fundamental science classes. This policy is designed to ensure that students are well equipped to do their best in the higher-level courses by first mastering the basics. Students who have not obtained a minimum grade of C- in any course in the following sequences must repeat that course before attempting the next course in that sequence. This applies to both science and non-science majors. The C-gate sequence is CHEM1201 General Chemistry I, CHEM1202 General Chemistry II, CHEM2261 Organic Chemistry I, CHEM2262 Organic Chemistry II, PHYS2203 University Physics I and PHYS2204 University Physics II.

Marine Biology

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

Requirements for the Bachelor of Science Degree

For matriculation in the marine biology curriculum, successful completion of secondary school courses in elementary algebra and plane geometry and a year of science are required.

Candidates for the Bachelor of Science degree with a major in marine biology must complete the courses outlined below.

1st Semester Credits
CHEM1201
General Chemistry I....3
CHEM1203
General Chemistry Laboratory I....1
ENWR1101
Academic Writing....3
MBIO1209, MBIO1219
Introduction to Marine Biology (Lecture and Laboratory)....4
UNIV1001
Transitioning to University Life....1
Total....12

2nd Semester
CHEM1202
General Chemistry II....3
CHEM1204
General Chemistry Laboratory II....I
ENWR1102
Academic Research and Writing....3
ENVR1111, ENVR1112
Oceanography (Lecture and Laboratory)....4
MATH1107
Precalculus
or
MATH1201
Calculus I....4
UNIV1002
Preparing for Professional Life....1
Total....16

3rd Semester
BIOL1251, BIOL1253
General Biology I (Lecture and Laboratory)....4
CHEM2261
Organic Chemistry I....3
CHEM2263
Organic Chemistry Laboratory I....2
ENGL2201
Masterpieces of World Literature I....3
MATH1201
Calculus I
or
MATH2202
Calculus II....4
Total....16

4th Semester Credits
BIOL1252, BIOL1254
General Biology II (Lecture and Laboratory)....4
BIOL2300
Experimental Design....3
CHEM2262
Organic Chemistry II....3
CHEM2264
Organic Chemistry Laboratory II....2
ENGL2202
Masterpieces of World Literature II....3
Total....15

5th Semester
BIOL2210, BIOL2211
Genetics (Lecture and Laboratory)....4
MBIO3650, MBIO3651
Physiology of Marine Animals (Lecture and Laboratory)....4
SPCH
Oral Communication Elective....3
UNIV2001
Cross-cultural Perspectives....3
Art/Humanities/Social Science Elective* 3
Total....17

6th Semester
MBIO1118, MBIO1128
Beach Ecology (Lecture and Laboratory)....3
MBIO3200
Tropical Marine Vegetation....4
MBIO3400
Tropical Marine Invertebrates....4
MBIO3900
Tropical Marine Vertebrates....4
Total....15

7th Semester
BIOL3225, BIOL3226
General Microbiology (Lecture and Laboratory)....4
BIOL4405
Ethics in Science....3
PHYS2201
Physics Laboratory I....1
PHYS2203
University Physics I (Lecture)....3
UNIV2002
Global Issues....3
Total....14

**Art/Humanities/Social Sciences Electives: may be courses in social science, history, philosophy or political science.*

8th Semester Credits
BIOL4414, BIOL4415
Animal Behavior (Lecture and Laboratory)....4
CHEM3281
Biochemistry I....3
ENVR6706
Applied Principles of Geographic Information Systems....3
PHYS2202
Physics Laboratory II....1
PHYS2204
University Physics II (Lecture)....3
Total....14
Total....121

Environmental Science Concentration

Follow semesters outlined above and continue with the following:

5th Semester
MBIO3650, MBIO3651
Physiology of Marine Animals (Lecture and Laboratory)....4
UNIV2001
Cross-cultural Perspectives....3
Environmental Science Course....3
Oral Communication Elective....3
Art/Humanities/Social Science Elective* 3
Total....16

6th Semester
MBIO1118, MBIO1128
Beach Ecology (Lecture and Laboratory)....3
MBIO3200
Tropical Marine Vegetation....4
MBIO3400
Tropical Marine Invertebrates....4
MBIO3900
Tropical Marine Vertebrates....4
Total....15

7th Semester
BIOL4405
Ethics in Science....3
PHYS2201
Physics Laboratory I....1
PHYS2203
University Physics I (Lecture)....3
UNIV2002
Global Issues....3
Environmental Science Courses....6
Total....16

**Art/Humanities/Social Sciences Electives: may be courses in social science, history, philosophy or political science.*

8th Semester Credits

ENVR6706
Applied Principles of Geographic Information Systems.....3
PHYS2202
Physics Laboratory II.....1
PHYS2204
University Physics II (Lecture).....3
Environmental Science Courses.....6
Total.....13
Total....133

Marine Biology Minor

(For Non-Science Majors)

Required 15-credit minor. Students must take these courses (no substitute courses allowed) and must study abroad.

Required Courses

MBIO1118, MBIO1128
Beach Ecology (Lecture and Laboratory).....3
MBIO3200
Tropical Marine Vegetation.....4
MBIO3400
Tropical Marine Invertebrates.....4
MBIO3900
Tropical Marine Vertebrates.....4

Mathematics Major (B.A.)

Lee Gildart and Oswald Haase School of Computer Sciences and Engineering

Requirements for the Bachelor of Arts Degree

The Lee Gildart and Oswald Haase School of Computer Sciences and Engineering offers a Bachelor of Arts in mathematics and a Bachelor of Science in mathematics (see page 184).

Educational Objectives

The educational objectives of the B.A. in mathematics program define the skills, knowledge and attributes that will be needed and achieved by the graduates for a successful career and professional accomplishments three to fours years after graduation. The program will produce graduates who:

1. Have an appropriate combination of theoretical knowledge and practical skills in mathematics to enter into and advance professionally in mathematics and related fields.
2. Have a well-rounded education with a strong liberal arts foundation that encourages and supports meaningful dialogue with individuals from other disciplines.
3. Are able to adapt to and succeed in a dynamic global environment.
4. Can engage effectively in oral, written and graphical communications in both interpersonal and public settings.
5. Are prepared to participate in lifelong learning opportunities.
6. Are prepared to continue formal education and obtain advanced degrees in mathematics or related fields.

These objectives are consistent with the mission of Fairleigh Dickinson University to educate and prepare students as world citizens through global education. They also fulfill the needs of our constituencies.

The educational objectives of the B.A. and B.S. in mathematics programs are fundamentally the same except that the B.A. in mathematics program is built on a liberal arts foundation. The requirements for the two programs are different.

Students seeking the B.A. in mathematics will complete the liberal arts core requirements of University College. The mathematics requirement in the core curriculum is fulfilled by MATH1201, MATH2202 Calculus I, II. The science requirement in the core curriculum is fulfilled by PHYS2203, PHYS2204 University Physics I, II with corresponding laboratories. Prerequisites: elementary and intermediate algebra, plane geometry, trigonometry and two units of science.

The program requires the successful completion of 120 credits. The mathematics major will take 35 credits in mathematics distributed as follows:

Mathematics Requirements (35 credits)

Credits

MATH1201
Calculus I.....4
MATH2202
Calculus II.....4
MATH2203
Calculus III.....3
MATH2210
Differential Equations.....3
MATH2255
Discrete Structures.....3
MATH3220
Linear Algebra.....3
MATH3225
Abstract Algebra.....3
MATH3230
Analysis.....3
MATH3237
Probability and Statistics I.....3
MATH3341
Advanced Engineering Mathematics.....3
Mathematics Elective* 3
Total.....35

Computer Science Requirements (9 credits)

CSCI1201
Computer Programming I.....3
CSCI1202
Computer Programming II.....3
CSCI2232
Data Structures.....3
Total.....9

Science Requirements (8 credits)

PHYS2201
Physics Laboratory I.....1
PHYS2202
Physics Laboratory II.....1
PHYS2203
University Physics I.....3
PHYS2204
University Physics II.....3
Total.....8

**Mathematics courses below MATH1201 Calculus I may not be used as mathematics electives or free electives, and not more than 6 credits of MATH-prefixed courses may be taken as free electives.*

Mathematics

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

Electives

Credits
Free Electives.....15*

General Education Requirements (38 credits)

*I. College Competencies** (12 credits)*

ENGR2210
Technical Communications.....3
ENGR3000
Modern Technologies: Principles, Applications and Impacts.....3
ENWR1101
Academic Writing.....3
ENWR1102
Academic Research and Writing.....3

II. Liberal Arts Distribution (18 credits)

Language and Culture Courses.....6
Social and Behavioral Sciences Courses.....6
Art and Humanities Courses.....6

III. University Requirements (8 credits)

UNIV1001
Transitioning to University Life.....1
UNIV1002
Preparing for Professional Life.....1
UNIV2001
Cross-cultural Perspectives.....3
UNIV2002
Global Issues.....3

For further information please consult with the Lee Gildart and Oswald Haase School of Computer Sciences and Engineering.

Mandatory Minor (15 credits)

Students pursuing Bachelor of Arts degrees are required to complete a **minor** of at least 15 credits in a **specific discipline**. Minors are specializations that supplement majors and contribute to general education in that they provide the student with an element of breadth. The requirements for minors and concentrations are provided in the section describing the major requirements.

**Mathematics courses below MATH1201 Calculus I may not be used as mathematics electives or free electives, and not more than 6 credits of MATH-prefixed courses may be taken as free electives.*
***MATH1201 Calculus I, a quantitative analysis course, and PHYS2203 University Physics I and PHYS2204 University Physics II, scientific analysis courses, satisfying college competencies are also included in the Mathematics Requirements and Science Requirements, respectively.*

Mathematics Major (B.S.)

Lee Gildart and Oswald Haase School of Computer Sciences and Engineering

The Bachelor of Science degree with a major in mathematics offers concentrations in applied mathematics, pure mathematics or pharmaceutical biostatistics. Each program requires successful completion of 120 credits.

Prerequisites: elementary and intermediate algebra, plane geometry, trigonometry and two units of science including one unit of physics.

Educational Objectives

The educational objectives of the B.S. in mathematics program define the skills, knowledge and attributes that will be needed and achieved by the graduates for a successful career and professional accomplishments three to fours years after graduation. The program will produce graduates who:

1. Have an appropriate combination of theoretical knowledge and practical skills in mathematics to enter into and advance professionally in mathematics and related fields.
2. Have a well-rounded education that encourages and supports meaningful dialogue with individuals from other disciplines.
3. Are able to adapt to and succeed in a dynamic global environment.
4. Can engage effectively in oral, written and graphical communications in both interpersonal and public settings.
5. Are prepared to participate in lifelong learning opportunities.
6. Are prepared to continue formal education and obtain advanced degrees in mathematics or related fields.

These objectives are consistent with the mission of Fairleigh Dickinson University to educate and prepare students as world citizens through global education. They also fulfill the needs of our constituencies.

Requirements for the Bachelor of Science Degree

Students must choose a concentration in applied mathematics, pure mathematics or pharmaceutical biostatistics.

Applied Mathematics or Pure Mathematics Concentration

The following is for a Bachelor of Science in mathematics with either an applied mathematics or pure mathematics concentration. Students must meet with their advisers to discuss the course sequence for the concentration.

Required Mathematics Courses

Credits
MATH1201
Calculus I.....4
MATH2202
Calculus II.....4
MATH2203
Calculus III.....3
MATH2210
Differential Equations.....3
MATH2255
Discrete Structures.....3
MATH3220
Linear Algebra.....3
MATH3225
Abstract Algebra.....3
MATH3230
Analysis.....3
MATH3237
Probability and Statistics I.....3
MATH3341
Advanced Engineering Mathematics.....3
Total.....32

Required Computer Science Courses

CSCI1201
Computer Programming I.....3
CSCI1202
Computer Programming II.....3
CSCI2232
Data Structures.....3
Total.....9

Required Liberal Arts Courses

ENWR1101
Academic Writing.....3
ENWR1102
Academic Research and Writing.....3
ENGR2210
Technical Communications.....3
ENGR3000
Modern Technologies: Principles, Applications and Impacts.....3
UNIV1001
Transitioning to University Life.....1
UNIV1002
Preparing for Professional Life.....1

Mathematics

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

Credits

UNIV2001
Cross-cultural Perspectives.....3
UNIV2002
Global Issues.....3
Total.....20

Required Science Courses

PHYS2201
Physics Laboratory I.....1
PHYS2202
Physics Laboratory II.....1
PHYS2203
University Physics I.....3
PHYS2204
University Physics II.....3
Total.....8

Electives

Mathematics Elective.....3

The 3-credit mathematics elective must be chosen from mathematics courses numbered 3000 or higher, with the approval of an adviser.

Science Electives.....11

Eight credits of science electives must be a one-year sequence with laboratory; the remaining 3 credits must be a 2000- or higher-level course in electrical engineering, computer science, chemistry or biology.

Humanities/Social Sciences Elective.....3

Students planning to do graduate work should take a 3-credit course in French, German or Russian.

Business Electives.....6

Substitutions may be made for these electives with the approval of an adviser.

Free Electives.....13*

Total.....36

Minor Sequence

A minor sequence of 15 credits is required in an area related to mathematics. An adviser will assist students in selecting the proper courses.

Pharmaceutical Biostatistics Concentration

The following is for a Bachelor of Science in mathematics with a pharmaceutical biostatistics concentration.

Required Mathematics Courses

MATH1201
Calculus I.....4
MATH2202
Calculus II.....4

**At most 6 credits of mathematics courses may be taken as free electives.*

Credits

MATH2203
Calculus III.....3
MATH2243
Statistical Programming.....3
MATH2255
Discrete Structures.....3
MATH2337
Applied Statistics I.....3
MATH2338
Applied Statistics II.....3
MATH3220
Linear Algebra.....3
MATH3237
Probability and Statistics I.....3
MATH3238
Probability and Statistics II.....3
Mathematics Elective*.....3
Total.....35

Required Computer Science Courses

CSCI1201
Computer Programming I.....3
CSCI1202
Computer Programming II.....3
CSCI2215
Introduction to Computer Science.....3
CSCI2232
Data Structures.....3
Total.....12

Required Liberal Arts Courses

ENGR2210
Technical Communications.....3
ENGR3000
Modern Technologies: Principles, Applications and Impacts.....3
ENWR1101
Academic Writing.....3
ENWR1102
Academic Research and Writing.....3
UNIV1001
Transitioning to University Life.....1
UNIV1002
Preparing for Professional Life.....1
UNIV2001
Cross-cultural Perspectives.....3
UNIV2002
Global Issues.....3
Total.....20

**Mathematics courses below MATH1201 Calculus I may not be used as mathematics electives or free electives, and not more than 6 credits of MATH-prefixed courses may be taken as free electives.*

Required Science Courses

Credits

BIOL1251, BIOL1253
General Biology I (Lecture and Laboratory).....4
BIOL1252, BIOL1254
General Biology II (Lecture and Laboratory).....4
CHEM1201, CHEM1203
General Chemistry I (Lecture and Laboratory).....4
CHEM1202, CHEM1204
General Chemistry II (Lecture and Laboratory).....4
Total.....16

Electives

Science Electives.....8

A year sequence in biology or chemistry (epidemiology, organic chemistry, microbiology, etc.) is recommended.

Free Electives.....14*

It is recommended that students take PHAR6605 The Pharmaceutical Industry: Structure and Government Regulations.

Electives include pharmaceutical management, creative writing, etc.)

Total.....22 (minimum)

Minor Sequence

A minor sequence of 15 credits is required in an area related to mathematics. An adviser will assist students in selecting the proper courses.

Mathematics Minor

(For Non-Mathematics Majors)

The minor in mathematics consists of 17 credits, and it is relevant to students in all majors. Mathematics is needed in every aspect of one's daily life and in every profession. Students who complete this minor will possess strong mathematical knowledge and problem-solving skills that are useful in the contemporary workplace and in graduate studies, including those in business, natural sciences, computer science, education, engineering and technology. The courses for a minor in mathematics within University College are as follows:

Required Courses (8 credits)

MATH1201
Calculus I.....4
MATH2202
Calculus II.....4

**Mathematics courses below MATH1201 Calculus I may not be used as mathematics electives or free electives, and not more than 6 credits of MATH-prefixed courses may be taken as free electives.*

Electives* (9 credits)

Three courses must be chosen from the following:

	Credits
MATH2203 Calculus III	3
MATH2210 Differential Equations	3
MATH2255 Discrete Structures	3
MATH3220 Linear Algebra	3
MATH3237 Probability and Statistics I	3
MATH3255 Probability and Statistics II	3
MATH3341 Advanced Engineering Mathematics	3

To take any course in the minor, a student must meet all the prerequisites for that course.

**With the approval of an academic adviser, students may take other higher-level MATH courses as electives.*

Mechanical Engineering (B.S.M.E.)

Lee Gildart and Oswald Haase School of Computer Sciences and Engineering

To be offered in fall 2017.

Mechanical engineering is one of the largest, broadest and most diverse engineering disciplines. Mechanical engineers are employed in practically all the sectors of the engineering industry, including manufacturing, power, automotive, aerospace, rail, marine, utilities, materials, defense, HVAC and construction. Mechanical engineers account for many engineering jobs.

The Bachelor of Science in Mechanical Engineering (B.S.M.E.) degree program prepares graduates for entrance into the profession of mechanical engineering or graduate study. The program graduates will work in industry as mechanical engineers, typically specializing as machine design engineers, manufacturing engineers, power engineers, electromechanical engineers or automotive engineers. They may also hold other job titles, including, marine engineers, acoustics and vibration engineers, HVAC engineers, facilities engineers, robotics engineers, tool engineers, piping engineers, lubrication engineers, project engineers and systems engineers.

As the nation's infrastructure ages and its population continues to grow, more mechanical engineers will be needed to maintain, repair, upgrade or expand utility infrastructure, transportation systems and public and private facilities, as well as to build new ones. Contributing to energy conservation, environmental sustainability and protection, mechanical engineers help build and maintain green transportation, buildings and cities, as well as manage renewable-energy projects, including building solar farms, wind turbines and wave-energy converters, in addition to hydroelectric and geothermal plants. They also develop cutting-edge technologies such as autonomous vehicles, electric cars, hybrid cars, unmanned aerial vehicles, autonomous underwater vehicles, robots, advanced manufacturing, prostheses and nanotechnology. Moreover, mechanical engineers will help revive the advanced, domestic manufacturing industry as promoted by the federal and state governments. The mechanical engineering program and profession will be very attractive to prospective students because of its excellent career opportunities, outstanding average starting salary, excellent median long-term salary, projected job growth and great career fulfillment.

The B.S.M.E. curriculum provides students with a varied and balanced educational experience through an appropriate combination of theoretical concepts and practical applications. It also provides them with an engineering design experience that expands in breadth and depth as they progress through their studies. A stimulating course of study is maintained by offering students a reasonable variety of contemporary courses. The engineering laboratory experience is fully integrated with course work. Students work in state-of-the-art laboratories.

The program focuses on four key areas of mechanical engineering: mechanical design, electromechanical devices and controls, advanced manufacturing and thermal sciences. Students will learn to analyze, design, build, test, operate and maintain mechanical components, devices, systems, processes and facilities; estimate costs; and manage projects. Working on alternative energy training systems, students will also learn to utilize renewable-energy sources and technologies, energy-saving materials and devices, thereby protecting the environment and sustaining scarce resources. Moreover, through courses in process control, industrial automation, manufacturing processes and trainers such as reconfigurable manufacturing systems, industrial robots, computer numerical control (CNC) machines, 3-D printers and programmable-logic-controller-based systems, they will be trained to develop, configure and program manufacturing and electromechanical systems. Students will be able to intern or find employment with mechanical engineering, mechanical contracting, and manufacturing companies; public utilities; municipalities; and other government agencies within the state and nearby states.

The program requires the successful completion of 131 credits with a minimum cumulative grade point ratio of 2.00. The credit distribution is as follows:

	Credits
Mathematics and Science Requirements	36
Liberal Arts Requirements	20
Mechanical Engineering Core Requirements	75
Total	131

Mechanical Engineering

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

The mathematics and science requirements provide students with the needed foundation in these areas while the liberal arts requirements provide them with a well-rounded education and a strong foundation for thoughtful global citizenship. The mechanical engineering core requirements provide students with the comprehensive knowledge, skills and training needed for professional success in the field of mechanical engineering, bridging the mathematics and basic sciences to engineering sciences, design and applications. Nine credits of elective courses in the mechanical core allow students to focus further on one particular area of mechanical engineering. Alternatively, 6 credits of the electives may be used to undertake cooperative educational experience to obtain practical work experience.

In addition to mathematics and science courses, students study foundational engineering courses such as engineering practices, computer-aided drafting, circuits, statics, strength of materials, dynamics, thermodynamics, fluid mechanics, computer programming and management and engineering economics. With these courses as foundation, they begin to take courses in four complementary areas of mechanical engineering: mechanical design, advanced manufacturing, electromechanical devices and control and thermal sciences.

Mechanical Design: Students learn to analyze, design, build and test mechanical components, devices, systems and processes in a mechanical engineering design course; a computer-aided design and manufacturing course; a two-course sequence in senior project design; and a course in stress and vibration analyses.

Advanced Manufacturing: In this area, students take four courses: mechanical measurement and devices, manufacturing processes, computer-aided design and manufacturing and industrial automation. Aside from acquiring knowledge in industrial automation and manufacturing concepts, processes and planning, they learn to use, set up, configure and program 3-D printers, CNC machines, configurable (flexible) manufacturing systems, robotic arms and programmable-logic-controller-based systems.

Electromechanical Devices and Controls: Students study the theory and applications of electromechanical devices in four courses: circuits, which is one of the foundational courses; electrical energy conversion; analog and digital control; and industrial automation. In particular, students learn about basic circuit theory and building circuits; motors and generators with actual hands-on applications; renewable-energy sources and technologies; automatic feedback control systems; and programmable-logic-controller-based systems.

Thermal Sciences: A three-course sequence in thermal sciences: thermodynamics, which is one of the foundational courses; thermal systems analysis and design; and heat transfer, is taken by students. They learn to analyze and design thermal systems.

The computer-aided design and manufacturing course is listed under the two areas of mechanical design and advanced manufacturing since it is applicable to both. Similarly, the industrial automation course is listed under the two areas of electromechanical devices and control as well as advanced manufacturing.

Substantial engineering design experience is obtained from the integrated laboratory experience throughout the curriculum. Advanced courses help students acquire experimental, design and computer simulation skills and integrate theory with practice. As a culmination of their design experience, senior students are required to successfully conceptualize, design and build a mechanical component, system or process in a two-course sequence in senior design project, by utilizing their past course work, following professional practice, and exercising sound engineering judgment.

Educational Objectives

The educational objectives of the B.S.M.E. program define the career and professional accomplishments that the graduates are being prepared to achieve three to four years after graduation. The B.S.M.E. program will produce graduates who:

1. Enter into and advance in the profession of mechanical engineering, particularly in the areas of mechanical design, electromechanical devices and controls, advanced manufacturing and thermal sciences.

2. Continue their formal education and obtain advanced degrees such M.S. degree in Mechanical Engineering or other related fields.

3. Become responsible professionals and global citizens who are aware of ethical issues and societal needs and problems.

The educational objectives of the B.S.M.E. program are compatible with the University, college and school missions. They also fulfill the needs of the program constituencies, which include students, alumni, employers, faculty and Industrial Advisory Board.

Student Outcomes

The B.S.M.E. program has adopted the Student Outcomes of the Engineering Accreditation Commission (EAC) of ABET as its own learning outcomes, which define the attributes, skills and knowledge that the graduates are expected to possess upon or before graduation. Each mechanical engineering graduate will demonstrate the following attributes and achievements as required by the EAC of ABET upon or before graduation:

a. An ability to apply knowledge of mathematics, science and engineering.

b. An ability to design and conduct experiments, as well as to analyze and interpret data.

c. An ability to design a system, component or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability.

d. An ability to function on multidisciplinary teams.

e. An ability to identify, formulate, and solve engineering problems.

f. An understanding of professional and ethical responsibility.

g. An ability to communicate effectively.

h. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context.

i. A recognition of the need for, and an ability to engage in lifelong learning.

j. A knowledge of contemporary issues.

k. An ability to use the techniques, skills and modern engineering tools necessary for engineering practice.

The B.S.M.E. program plans to apply for an accreditation review from the Engineering Accreditation Commission (EAC) of ABET a few years after the degree completion of its first graduating class.

Cooperative Education Option

Students in the B.S.M.E. program have the option to undertake a cooperative education experience and earn a total of six academic credits toward their degrees. The

Mechanical Engineering

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

co-op experience provides students a real-world grounding, linking theory and practice, academic and industrial experiences and college education and lifelong learning. It better prepares students for jobs, gives them a competitive edge in the job market, helps them develop networking skills and professional contacts and allows them to experience career fields before graduation. Industry benefits from better-prepared students with real and relevant work experience — saving time and money by reducing the training period for new employees.

Requirements for the Bachelor of Science in Mechanical Engineering Degree

1st Semester	Credits
ENGR1301 Engineering Practices, Graphics and Design	3
ENWR1101 Academic Writing	3
MATH1201 Calculus I	4
PHYS2201 Physics Laboratory I	1
PHYS2203 University Physics I	3
UNIV1001 Transitioning to University Life	1
Total	15

2nd Semester	
ENGR1223 Introduction to CAD	2
ENGR3000 Modern Technologies: Principles, Applications and Impacts	3
ENWR1102 Academic Research and Writing	3
MATH2202 Calculus II	4
PHYS2202 Physics Laboratory II	1
PHYS2204 University Physics II	3
UNIV1002 Preparing for Professional Life	1
Total	17

3rd Semester	
CHEM1201 General Chemistry I	3
CHEM1203 General Chemistry Laboratory I	1
ENGR2221 Statics	3
MATH2210 Differential Equations	3
MENG2232 Mechanical Measurement and Devices	3
UNIV2001 Cross-cultural Perspectives	3
Total	16

4th Semester	
ENGR1204 Programming Languages in Engineering	3
ENGR2228 Strength of Materials	3
ENGR3351 Applied Thermodynamics	3
ENGR3431 Dynamics	3
MATH3220 Linear Algebra	3
MENG2235 Manufacturing Processes	3
Total	18

5th Semester	
EENG2221 Signals and Systems I	4
ENGR4254 Fluid Mechanics	3
MATH2203 Calculus III	3
MENG3150 Thermal Systems Analysis and Design	3
Science Elective*	4
Total	17

6th Semester	
ENGR2210 Technical Communications	3
ENGR4210 Managerial and Engineering Economic Analysis	3
ENGR4221 Engineering Statistics and Reliability	3
MENG3155 Heat Transfer	3
MENG3230 Computer-aided Design and Manufacturing	3
UNIV2002 Global Issues	3
Total	18

**Science Elective includes CHEM1202/CHEM1204 General Chemistry II Lecture (3 credits) and Laboratory (1 credit); BIOL1251/BIOL1253 General Biology I (3 credits) and Laboratory (1 credit); BIOL2203/BIOL2223 Human Anatomy and Physiology I Lecture (3 credits) and Laboratory (1 credit); and PHYS3205 Modern Physics (3 credits) and PHYS4430 Selected Studies in Physics (1 credit).*

7th Semester	Credits
ENGR3211 Engineering Materials I	3
MENG4248 Mechanical Engineering Design I	3
MENG4355 Analog and Digital Control	3
MENG4375 Electrical Energy Conversion	3
MENG4384 Preparation for Senior Design Project	1
Technical Elective*	3
Total	16

8th Semester	
MENG4356 Stress and Vibration Analyses	3
MENG4360 Industrial Automation	3
MENG4386 Senior Design Project	2
Technical Electives*	6
Total	14
Total	*131*

**Technical Electives include CENG3261 Estimating I; EENG2222 Signals and Systems II; EENG3265 Electronics I; ENGR2286 Digital System Design; ENGR4001, ENGR4002 FE/EIT Exam Preparation I and II; ENGR4263 Project Management in Engineering and Technology; MENG3288 Microcontroller System Design; MENG4040 Heating, Ventilation and Air Conditioning (HVAC); MENG4041 HVAC and Refrigeration Controls; MENG4250 Mechanical Engineering Design II; and MENG4365 Advanced Fluid Mechanics.*

Mechanical Engineering Technology (B.S.M.E.T.)

Lee Gildart and Oswald Haase School of Computer Sciences and Engineering

See "Engineering Technology Majors," page 161.

Medical Imaging Sciences Major (B.S.M.I.S.)

Henry P. Becton School of Nursing and Allied Health

(In partnership with FDU and the Rutgers School of Health Related Professions [Rutgers SHRP])

Completion of this program will result in a Bachelor of Science in Medical Imaging Sciences with a concentration in cardiac sonography, diagnostic medical sonography, nuclear medicine or vascular sonography awarded jointly between FDU and the Rutgers School of Health Related Professions (Rutgers SHRP). Students must complete 92 preprofessional credits during their first three years at FDU before applying for acceptance to the professional component at Rutgers SHRP for their senior year.

Admission Requirements

Admission to the professional component at Rutgers SHRP requires:

• A separate application in the fall of the junior year.

• Admission decisions for the professional component are made in accordance with criteria, policies and procedures established by a joint Committee on Admissions and Academic Status and cannot be guaranteed by FDU.

• Students admitted to the B.S. in Medical Imaging Sciences major must maintain a minimum grade point ratio of 2.85 in their preprofessional course work.

Upon successful completion of all course work, graduates will receive a B.S. in Medical Imaging Sciences (B.S.M.I.S.), with eligibility for national certification and state licensure, where applicable.

Students must choose from one of the four areas of concentration (see page 190).

Requirements for the Bachelor of Science in Medical Imaging Sciences Degree

1st Semester	Credits
BIOL1251 General Biology I	3
BIOL1253 Laboratory: General Biology I	1
CHEM1201 General Chemistry I	3
CHEM1203 General Chemistry Laboratory I	1
ENWR1101 Academic Writing	3
MATH1107 Precalculus	4
UNIV1001 Transitioning to University Life	1
Total	16

2nd Semester	
BIOL1252 General Biology II	3
BIOL1254 Laboratory: General Biology II	1
CHEM1202 General Chemistry II	3
CHEM1204 General Chemistry Laboratory II	1
ENWR1102 Academic Research and Writing	3
MATH1201 Calculus I	4
UNIV1002 Preparing for Professional Life	1
Total	16

3rd Semester	
BIOL2203, BIOL2223 Human Anatomy and Physiology I (Lecture and Laboratory)	4
CHEM2261 Organic Chemistry I	3
CHEM2263 Organic Chemistry Laboratory I	2
CSCI1105 Survey of Computers and Computer Software	3
SPCH1155 Public Speaking	3
UNIV2001 Cross-cultural Perspectives	3
Total	18

Medical Technology

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

4th Semester Credits

BIOL2125, BIOL2126
Microbiology for the Health Sciences (Lecture and Laboratory)....4
BIOL2204, BIOL2224
Human Anatomy and Physiology II (Lecture and Laboratory).....4
CHEM2262
Organic Chemistry II.....3
CHEM2264
Organic Chemistry Laboratory II.....2
UNIV2002
Global Issues.....3
Total.....16

5th Semester

CHEM3281
Biochemistry I.....3
MEDT1130
Bioethics.....3
PHYS2201
Physics Laboratory I.....1
PHYS2203
University Physics I.....3
PSYC1103
General Psychology.....3
Total.....13

6th Semester

NURS4420
Health Care Management.....3
PHIL1000
The Life of the Mind.....3
PHYS2202
Physics Laboratory II.....1
PHYS2204
University Physics II.....3
PSYC2201
Statistics.....3
Total.....13

After completion of three years of study (a minimum of 92 credits) at FDU, the program is completed in 12–15 months at the Rutgers School of Health Related Professions (Rutgers SHRP). With the successful completion of the program at Rutgers SHRP, the student will earn the Bachelor of Science in Medical Imaging Sciences.

Concentrations

Cardiac Sonography Concentration

Cardiac sonography prepares individuals to perform cardiac sonography of the cardiovascular system at the request of physicians to aid in diagnosis, therapeutic treatments and cardiovascular-disease management.

The program includes instruction in reviewing patient histories and clinical data, patient care, investigative and examination procedures, diagnostic procedures data analysis and documentation, physician consultation, equipment monitoring and professional standards and ethics.

Diagnostic Medical Sonography Concentration

Diagnostic medical sonographers provide patient services using diagnostic ultrasound under the supervision of a licensed physician. Sonographers look for subtle differences between health and pathological areas and decide what images to include in their report. The sonographer may provide this service in a variety of medical settings when the physician is responsible for the use and interpretation of ultrasound procedures.

Nuclear Medicine Concentration

Nuclear medicine combines chemistry, physics, mathematics, computer technology and medicine in using radioactivity to diagnose and treat diseases. Nuclear medicine technologists prepare and administer radiopharmaceuticals and use radiation-detective devices to provide information about the structure and function of virtually every major organ system within the body.

Vascular Sonography Concentration

Vascular sonographers assist physicians in the diagnosis of disorders affecting circulation by using ultrasound instrumentation. They noninvasively record vascular information such as blood pressure, oxygenation and circulation throughout the body.

Medical Technology Major (B.S.)

Henry P. Becton School of Nursing and Allied Health

The courses prescribed by the American Society for Clinical Pathology are completed in the first three years. Following this, application must be made to an approved program for a 12- to 15-month training period, which qualifies a student for admittance to the examination of the Board of Registry. The Bachelor of Science degree is awarded upon the completion of the clinical program.

Candidates for the degree must complete the course of study outlined.

Recommended Course Sequence

1st Semester Credits

BIOL1251
General Biology I.....3
BIOL1253
Laboratory: General Biology I.....1
CHEM1201
General Chemistry I.....3
CHEM1203
General Chemistry Laboratory I.....1
ENWR1101
Academic Writing.....3
MATH1107
Precalculus.....4
UNIV1001
Transitioning to University Life.....1
Total.....16

2nd Semester

BIOL1252
General Biology II.....3
BIOL1254
Laboratory: General Biology II.....1
CHEM1202
General Chemistry II.....3
CHEM1204
General Chemistry Laboratory II.....1
CSCI1105
Survey of Computers and Computer Software.....3
ENWR1102
Academic Research and Writing.....3
MATH1201
Calculus I.....4
Total.....18

Medical Technology

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

3rd Semester Credits
BIOL2237, BIOL2239
Human Structure and Function I (Lecture and Laboratory).....4
CHEM2261
Organic Chemistry I.....3
CHEM2263
Organic Chemistry Laboratory I.....2
PSYC1103
General Psychology.....3
UNIV1002
Preparing for Professional Life.....1
Total.....13

4th Semester
BIOL4240, BIOL4241
Molecular Cell Biology (Lecture and Laboratory).....4
CHEM2262
Organic Chemistry II.....3
CHEM2264
Organic Chemistry Laboratory II.....2
PSYC2201
Statistics.....3
UNIV2001
Cross-cultural Perspectives.....3
Total.....15

5th Semester
BIOL2210, BIOL2211
Genetics (Lecture and Laboratory).....4
BIOL3225, BIOL3226
General Microbiology (Lecture and Laboratory).....4
CHEM3281
Biochemistry I.....3
MEDT1130
Bioethics.....3
UNIV2002
Global Issues.....3
Total.....17

6th Semester
BIOL5306
Immunology.....3
MEDT1201
Introduction to Medical Technology.....3
NURS4420
Health Care Management.....3
NURS4430
Nursing Research.....3
SPCH1155
Public Speaking.....3
Total.....15

7th and 8th Semesters
12 months at an approved hospital
MEDT4205
Clinical Laboratory Education I.....16
MEDT4206
Clinical Laboratory Education II.....16
Total.....32
Total....126

Requirements for the Bachelor of Science Degree

Biology Requirements

Credits
BIOL1251, BIOL1253
General Biology I (Lecture and Laboratory).....4
BIOL1252, BIOL1254
General Biology II (Lecture and Laboratory).....4
BIOL2203, BIOL2223
Human Anatomy and Physiology I (Lecture and Laboratory).....4
BIOL2204, BIOL2224
Human Anatomy and Physiology II (Lecture and Laboratory).....4
BIOL2210, BIOL2211
Genetics (Lecture and Laboratory).....4
BIOL3225, BIOL3226
General Microbiology (Lecture and Laboratory).....4
BIOL4240, BIOL4241
Molecular Cell Biology (Lecture and Laboratory).....4
BIOL5306
Immunology.....3
Total.....31

Science Requirements

CHEM1201
General Chemistry I.....3
CHEM1202
General Chemistry II.....3
CHEM1203
General Chemistry Laboratory I.....1
CHEM1204
General Chemistry Laboratory II.....1
CHEM2261
Organic Chemistry I.....3
CHEM2262
Organic Chemistry II.....3
CHEM2263
Organic Chemistry Laboratory I.....2
CHEM3281
Biochemistry I (Lecture).....3
Total.....22

Mathematics and Computer Science Requirements

CSCI1105
Survey of Computers and Computer Software.....3
MATH1107
Precalculus.....4
MATH1201
Calculus I.....4
PSYC2201
Statistics.....3
Total.....14

Medical Technology Requirements

Credits
MEDT1130
Bioethics.....3
MEDT1201
Introduction to Medical Technology.....3
MEDT4205
Clinical Laboratory Education I.....16
MEDT4206
Clinical Laboratory Education II.....16
NURS4420
Health Care Management.....3
NURS4430
Nursing Research.....3
Total.....44

Humanities/Social Science Requirements

ENWR1101
Academic Writing.....3
ENWR1102
Academic Research and Writing.....3
PHIL1000
The Life of the Mind.....3
SPCH1155
Public Speaking.....3
Total.....12

University Requirements

UNIV1001
Transitioning to University Life.....1
UNIV1002
Preparing for Professional Life.....1
UNIV2001
Cross-cultural Perspectives.....3
UNIV2002
Global Issues.....3
Total.....8
Total....120

Clinical Laboratory Experience

Six semesters of college work are required for admission to this hospital program. At the end of the sixth semester, students may apply to a program of medical technology approved by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS). Students will select their laboratory affiliations in consultation with the faculty adviser. A clinical training program is required of students who wish to qualify for the examinations given by the Board of Registry of the American Society for Clinical Pathology (A.S.C.P.) for the certification as a medical technologist.

Admission to the schools is clearly competitive. If students are not selected for hospital internship during the fourth year, an option may be chosen to continue for

Nursing

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

a B.S. in biology. Toward the completion of this degree, students may again apply for hospital internship.

The University now has affiliations with five approved programs of medical technology as listed below. Upon the successful completion of a 12- to 15-month training period, students are eligible to receive 32 credits toward the Bachelor of Science degree. The approved programs offer similar programs of training, although conditions may vary slightly from site to site.

Students report to the laboratory five days a week. A two-week vacation period is suggested by the A.S.C.P. and is customary. Students should expect to work under supervision and to have reference books available. MEDT4205 and MEDT4206 Clinical Laboratory Education I, II carry a course fee for fall and spring.

The affiliated programs of medical technology in New Jersey are as follows:

Affiliated Programs and Officials

Jersey Shore Medical Center, Neptune, New Jersey
Mark Krumerman, M.D., Director
Perla Simons, M.T. (A.S.C.P.) Educational Coordinator
Monmouth Medical Center, Long Branch, New Jersey
Louis J. Zinterhofer, M.D., Director
John A. Mihok, M.T. (A.S.C.P.), S.M., Program Director
Morristown Memorial Hospital, Morristown, New Jersey
Jerry Rothenberg, M.D., Director
Drew Minardi, M.P.A., M.A., M.T., P.B.T. (A.S.C.P.) B.B., C.Q.A. (A.S.Q.), Program Director
Rutgers School of Health Related Professions*
Debra Josko, Ph.D., M.L.T. (A.S.C.P.) M., S.M., Program Director
Valley Hospital, Ridgewood, New Jersey
Metin Taskin, M.D., Pathologist
Linda Sherman-Atkins, M.S., M.T., (A.S.C.P.), S.H., Program Director

This program is part of a joint degree program and is 15 months in duration, see "Clinical Laboratory Sciences," page 149.

Nursing Major (B.S.N.)

Henry P. Becton School of Nursing and Allied Health

The goal of the nursing program is to prepare a professional nurse to provide comprehensive nursing care to persons and families in all environments where health care is required.

Laboratory experiences are concurrent with nursing theory and begin at the first semester of sophomore-level courses. Beginning at the sophomore level, students are assigned to a variety of clinical laboratory experiences at various locations including hospitals, clinics, nursing homes and community health agencies. The program is reviewed and evaluated periodically by the faculty, students, consumers, community health care agencies and external accrediting bodies to assess quality and relevance.

The Bachelor of Science in Nursing program is open to high school graduates, to college graduates holding a baccalaureate degree in a field other than nursing and to diploma or associate degree R.N.s. College graduates attend an accelerated track that is identical in nursing content to the four-year nursing program. The accelerated nursing program offers two options: a full-time program, beginning each year in May, that can be completed in one calendar year following fulfillment of all prerequisites and a part-time program, beginning each year in September, that can be completed in two calendar years following fulfillment of all prerequisites.

The nursing program is accredited by the Commission on Collegiate Nursing Education and the New Jersey Board of Nursing.

The program is offered at the Metropolitan Campus and the Florham Campus.

Admission Requirements

In addition to the general admission requirements of the University and a recommended minimum combined SAT score of 1,100 (mathematics 500 minimum score), students entering the four-year, generic nursing program must have completed:

1 year of chemistry with laboratory
1 year of biology with laboratory
1 semester of physics is strongly recommended

Students entering the accelerated nursing program must have at least a 3.00 cumulative grade point ratio (CGPR) for their undergraduate degree. The following prerequisites also are required for the accelerated tracks (minimum grade of B):

Anatomy and Physiology (8 credits)
Chemistry (4 credits)
Economics (3 credits)
Bioethics or Medical Ethics (3 credits)
Microbiology (4 credits)
Statistics (3 credits)

A score at the 50th percentile or better on a standardized Nursing Admission Test.

An interview may be required for admission to the nursing program.

Students applying to the R.N. to B.S.N. to M.S.N. program must have graduated from a regionally accredited diploma or associate degree nursing program with a cumulative grade point ratio of at least 3.00 and be licensed or eligible for licensure as an R.N. in the state of New Jersey. An interview is required to discuss transfer credits and plan each student's course sequence.

Admission with Advanced Standing

Candidates for transfer from regionally accredited institutions may be admitted with advanced standing upon presentation of proper credentials and a conference with the School of Nursing and Allied Health. Candidates must have at least a 3.00 cumulative grade point ratio (CGPR) in their previous college course work. Grades in comparable non-nursing courses must be C or better. Transfer of nursing courses requires grades of B or better and the approval of the nursing faculty.

Nursing

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

Criminal History Record Search and Urine Drug Testing

Fairleigh Dickinson University has affiliation agreements with health care institutions in the region to provide clinical experiences for students of the Henry P. Becton School of Nursing and Allied Health. These affiliated health care institutions are required by the Joint Commission on Accreditation of Health Care Organizations Standard (HR1.20) to conduct criminal history checks and urine drug testing on all personnel who work in clinical settings, including nursing students. All students must comply with this requirement to evaluate their suitability for placement in a clinical experience. Information obtained may cause affiliated health care institutions to reject a student for a clinical experience.

Health Clearance for Nursing Students

As for all University students, nursing students are required to have a full physical examination and health history before beginning classes. A copy of the physical examination and the health history, including a complete immunization record, a record of negative tuberculosis status and a record of two measles immunizations (under age 40), must be on file in the campus Student Health Services Office.

Upon matriculation as a nursing major and before any clinical courses can be taken, nursing students must present documentation of antibody titers for rubella (German measles), rubeola (measles), mumps and varicella (chickenpox) showing immunity. If antibody titers do not demonstrate immunity, vaccine must be administered and antibody titers repeated. The hepatitis B vaccine is strongly recommended. Evidence of a complete hepatitis B vaccine series or a waiver of vaccination must be on file in the campus Student Health Services Office.

A complete health record must be on file for matriculated nursing majors prior to the start of NURS2003, NURS2113 Fundamentals of Nursing I.

Students may participate in clinical experiences only if their health file is complete and up-to-date. If students are unable to attend clinical experiences because of incomplete health records, as with all absences, they may be in jeopardy of not meeting course objectives.

CPR Certification and Student Malpractice Insurance

Prior to beginning sophomore-level clinical nursing courses, nursing majors must submit to the School of Nursing and Allied Health office documentation of a current cardiopulmonary resuscitation (CPR) card and of current individual student malpractice insurance coverage. Each year thereafter, nursing majors must submit updated documentation of CPR certification and insurance coverage to the School of Nursing and Allied Health.

Evidence of Car Insurance

Prior to beginning the senior-level courses NURS4410, NURS4411 Community Health Nursing, nursing majors must submit documentation of current automobile liability insurance to the School of Nursing and Allied Health office, since students are expected to transport themselves to clients' homes for clinical experiences as part of this course.

Grading

Students must earn a B- or better in order to enter the next nursing course. Grades in non-nursing courses must be a C or better. Clinical laboratory experience is graded by the use of satisfactory (S) or unsatisfactory (U). The laboratory experience is a vital part of the curriculum; therefore, an unsatisfactory clinical grade will be recorded as an F for the course.

Students must maintain a minimum cumulative grade point ratio of 2.67 to progress to subsequent nursing courses. Nursing courses may be repeated only once.

Requirements for the Bachelor of Science in Nursing Degree (Generic)

1st Semester	Credits
BIOL2203, BIOL2223 Human Anatomy and Physiology I (Lecture and Laboratory)	4
CHEM1107, CHEM1117 Chemistry for Health Sciences (Lecture and Laboratory)	4
CSCI1105 Survey of Computers and Computer Software	3
ENWR1101 Academic Writing	3
UNIV1001 Transitioning to University Life	1
Physical Education Elective	1
Total	16

2nd Semester	
BIOL2125, BIOL2126 Microbiology for Health Sciences (Lecture and Laboratory)	4
BIOL2204, BIOL2224 Human Anatomy and Physiology II (Lecture and Laboratory)	4
ENWR1102 Academic Research and Writing	3
MATH1105 College Algebra	4
NURS1101 A Preview of Professional Nursing	2
UNIV1002 Preparing for Professional Life	1
Total	18

3rd Semester	Credits
NURS2003, NURS2113 Fundamentals of Nursing I (Lecture and Laboratory)	3
NURS2200, NURS2201 Health Assessment (Lecture and Laboratory)	4
NURS2210 Pathophysiology	3
NURS3209 Bioethics	3
PSYC1103 General Psychology	3
Total	16

Nursing

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

4th Semester Credits

NURS2004, NURS2114
Fundamentals of Nursing II (Lecture and Laboratory).....3
NURS2005
Professional Communication Skills: Individual, Family and Groups.....3
NURS2006
Life Span.....3
NURS2007
Pharmacotherapeutics.....3
PSYC2201
Statistics.....3
SPAN1111
Spanish for Health Personnel.....3
Total.....18

5th Semester

NURS3208
Introduction to Health Care Economics.....3
NURS3300, NURS3301
Medical-Surgical Nursing I (Lecture and Laboratory).....5
NURS3310, NURS3311
Psychiatric Nursing (Lecture and Laboratory).....5
Total.....13

6th Semester

NURS3320, NURS3321
Women's Health Nursing (Lecture and Laboratory).....5
NURS3340, NURS3341
Nursing Care of the Child and Family (Lecture and Laboratory).....5
Free Elective.....3
Total.....13

7th Semester

NURS4410, NURS4411
Community Health Nursing (Lecture and Laboratory).....5
NURS4420
Health Care Management.....3
NURS4430
Nursing Research.....3
UNIV2001
Cross-cultural Perspectives.....3
Total.....14

8th Semester

NURS4440, NURS4441
Medical-Surgical Nursing II (Lecture and Laboratory).....8
NURS4460
Preparation for Success.....1
SPCH1155
Public Speaking.....3
UNIV2002
Global Issues.....3
Total.....15

Requirements for the One-Year Accelerated Bachelor of Science in Nursing Degree

Summer Session I
(Freshman-level Courses)

Credits

NURS2003, NURS2113
Fundamentals of Nursing I (Lecture and Laboratory).....3
NURS2005
Professional Communication Skills: Individual, Family and Groups.....3
NURS2200, NURS2201
Health Assessment (Lecture and Laboratory).....4

Summer Session II
(Sophomore-level Courses)

NURS2004, NURS2114
Fundamentals of Nursing II (Lecture and Laboratory).....3
NURS2006
Life Span.....3
NURS2210
Pathophysiology.....3

Fall Semester
(Junior-level Courses)

NURS3300, NURS3301
Medical-Surgical Nursing I (Lecture and Laboratory).....5
NURS3310, NURS3311
Psychiatric Nursing (Lecture and Laboratory).....5
NURS3320, NURS3321
Women's Health Nursing (Lecture and Laboratory).....5
NURS3340, NURS3341
Nursing Care of the Child and Family (Lecture and Laboratory).....5

Spring Semester
(Senior-level Courses)

NURS4410, NURS4411
Community Health Nursing (Lecture and Laboratory).....5
NURS4420
Health Care Management.....3
NURS4430
Nursing Research.....3
NURS4440, NURS4441
Medical-Surgical Nursing II (Lecture and Laboratory).....8
NURS4460
Preparation for Success.....1

Requirements for the Two-Year Accelerated Bachelor of Science in Nursing Degree

Fall Semester
(Freshman-level Courses)

Credits

NURS2003, NURS2113
Fundamentals of Nursing I (Lecture and Laboratory).....3
NURS2005
Professional Communication Skills: Individual, Family and Groups.....3
NURS2007
Pharmacotherapeutics.....3
NURS2200, NURS2201
Health Assessment (Lecture and Laboratory).....4

Spring Semester
(Sophomore-level Courses)

NURS2004, NURS2114
Fundamentals of Nursing II (Lecture and Laboratory).....3
NURS2006
Life Span.....3
NURS2210
Pathophysiology.....3
NURS3310, NURS3311
Psychiatric Nursing (Lecture and Laboratory).....5

Summer Semester
(Junior-level Courses)

NURS3209
Bioethics* 3
NURS3300, NURS3301
Medical-Surgical Nursing I (Lecture and Laboratory).....5

Fall Semester
(Junior-level Courses)

NURS3208
Introduction to Health Care Economics* 3
NURS3320, NURS3321
Women's Health Nursing (Lecture and Laboratory).....5
NURS3340, NURS3341
Nursing Care of the Child and Family (Lecture and Laboratory).....5

**If not completed as a prerequisite.*

Spring Semester (Senior-level Courses) Credits

NURS4410, NURS4411
Community Health Nursing (Lecture and Laboratory).....5
NURS4420
Health Care Management.....3
NURS4430
Nursing Research.....3

Summer Semester (Senior-level Courses)

NURS4440, NURS4441
Medical-Surgical Nursing II (Lecture and Laboratory).....8
NURS4460
Preparation for Success.....1

Bachelor of Science in Nursing Degree (R.N. to B.S.N. to M.S.N.)

This program is designed to allow R.N.s who have a diploma or associate degree in nursing to earn first a B.S.N. and then an M.S.N. Half of the nursing credits for the B.S.N. will be accepted from the student's diploma or associate degree program. The other 30 nursing credits are taken at FDU. R.N. students also can transfer up to 35 of the 68 arts and science credits that make up the 123-credit B.S.N. degree.

This B.S.N. includes two advanced placement courses, giving B.S.N. graduates advanced standing as they begin the M.S.N. portion of this career mobility track.

The R.N. to B.S.N. curriculum is outlined below as a three-year, part-time evening program. It also can be completed full-time in five semesters. Depending on the arts and science courses that were transferred, the non-nursing courses taken at FDU will vary from student to student. See the *Graduate Studies Bulletin* for the M.S.N. curriculum plan.

Sample Part-time Sequence

First Year

CSCI1105
Survey of Computers and Computer Software.....3
NURS3371
The Professional Nurse in the 21st Century.....3
NURS6620
Advanced Practice Nursing I: Health Assessment Theory.....2

Credits

NURS6621
Advanced Practice Nursing I: Health Assessment Practicum.....2
NURS7702
Advanced Pathophysiology.....3
PHED4436
CPR and Emergency First Aid.....2
UNIV2001
Cross-cultural Perspectives.....3
Communication/Speech Elective.....3
Free Elective.....3

Second Year

NURS3208
Introduction to Health Care Economics.....3
NURS3209
Bioethics.....3
NURS4420
Health Care Management.....3
NURS6600
Introduction to Advanced Nursing: Philosophies and Theories.....3
Art Elective.....3
History Elective.....3
Free Elective.....3

Third Year

NURS4410
Community Health Nursing.....5
NURS4411
Community Health Nursing Laboratory.....0
NURS4430
Nursing Research.....3
PSYC2201
Statistics.....3
UNIV2002
Global Issues.....3
Elective.....3
Literature Elective.....3
Nursing Elective.....3

Accelerated Program with Professional Schools

University College has combined-degree programs with professional schools for its exceptional students. In these programs, students earn both their B.S. degree and professional degree in one year less time than the two degrees normally would require separately. The program includes the B.S./D.P.T. (Doctor of Physical Therapy) with Rutgers School of Health Related Professions, Newark (only offered through the Henry P. Becton School of Nursing and Allied Health).

Physical Education and Health

Department of Physical Education

There is no physical education major. The University does encourage student participation in those physical activities that have social significance and allow for lifetime participation and interest. With this philosophy in mind, the emphasis in the physical education courses is on those activities that have enduring value.

All students in the first or second semester in the University College liberal arts curriculum are required to take one semester of physical education for 1 credit.

The tuition paid for this credit does not cover special fees for use of outside facilities. Physical education courses may be taken as free electives.

Political Science

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

Political Science Major (B.A.)

School of Criminal Justice, Political Science and International Studies

Fairleigh Dickinson University's New Jersey Metropolitan Campus serves as an excellent venue for students studying political science — an intriguing discipline that dates back to the philosophical reflections of Socrates, Plato and Aristotle who critically examined the role of government, political activity and political behavior within society.

Enjoying partnerships with the United Nations and a wide array of government, public, nonprofit and private sector organizations, the study of political science at the Metropolitan Campus offers students a dynamic, challenging and engaging course of study. Its interdisciplinary curriculum skillfully examines, integrates, analyzes and applies theoretical and philosophical concepts inherent to political systems and behavior that are influenced by an ever-changing, globalized and technologically advanced society. The program places a premium on cultivating student knowledge and understanding, critical thinking and reflection, effective communication, information and technological literacy and ethical and professional behavior.

Specifically, the program examines political systems and behavior from a macro and micro perspective, taking into consideration the impact of globalization and technology that serve to influence political decision-making in areas such as climate change, the environment, migration and immigration, economic policies, economic disparity, hunger, social injustice and inequality, religious extremism, terrorism and exponentially advancing technologies that influence the political landscape, on both the domestic and international stage.

Students studying political science at Fairleigh Dickinson gain valuable knowledge and skills sets that can be applied in a wide range of exciting careers in a wide range of venues, including but not limited to federal, state and local government; law; business; international and nonprofit organizations; education and research; journalism; campaign management and polling; and electoral politics. Other career paths can lead to employment within:

- Government and Military Service
- Intelligence, Information and Analytical Services
- Foreign Service
- Public Relations and Consulting
- Teaching and Research
- International Relations
- Regulatory Agencies
- Nonprofit and Nongovernmental Organizations (NGOs)
- Law and the Administration of Justice
- Journalism and Broadcasting

Requirements for the Bachelor of Arts Degree

Required Courses

In addition to fulfilling the liberal arts course requirements within University College: Arts • Sciences • Professional Studies, political science students complete a total of 33 credits within the discipline.

The program's core curriculum provides students a foundation in the study of government, political systems and processes; how political behavior influences public policy; and the various methodologies employed by political scientists to inform and expand their knowledge, understanding, and decision making.

The core curriculum consists of the following courses:

POLS1101 Introduction to Political Science
POLS2231 Comparative Government and Politics
POLS2232 Political Thought and Theory
POLS2251 Foreign Policy of the United States
POLS4600 Political Science Seminar
or
POLS4875 Honors in Political Science

Political Science Electives (21 credits)

In addition to fulfilling the requirements for the core curriculum, students are required to complete an additional 21 credits of political science electives. In fulfilling this requirement, students have the opportunity for developing concentrations in the areas of: (1) **American Government and Politics**, (2) **Comparative Government and Politics**, (3) **International Relations** and (4) **Law and Political Theory**.

American Government and Politics
POLS2206 American Minority Politics
POLS2251 Foreign Policy of the United States
POLS2253 American Government
POLS2254 Public Policy
POLS3311 The American Presidency
POLS3312 The American Congress
POLS3324 American Minority Groups
POLS3331 American Political Thought
POLS3349 African-American Politics
POLS3354 Political Parties and Pressure Groups
POLS4320 Women's America

Comparative Government and Politics
POLS2205 Comparative Legal Systems
POLS2231 Comparative Government and Politics
POLS3334 The Soviet Union and Russia
POLS3338 India and Its Neighbors
POLS3352 Government and Politics of the Third World
POLS3361 Politics of East Asia I
POLS3362 Politics of East Asia II
POLS3363 Middle East Politics
POLS3364 Middle East in World Affairs
POLS3365 Latin America in World Affairs I
POLS3366 Latin America in World Affairs II
POLS3367 Africa in World Affairs I
POLS3368 Africa in World Affairs II
POLS4460 New Europe
POLS4463 Political and Economic Challenges in Africa

International Relations
POLS2010 Nationalism and Ethnic Violence
POLS2204 International Relations
POLS2211 International Organization
POLS2212 International Law
POLS3010 Nationalism and the Modern State
POLS3313 Problems in International Politics
POLS3501 Globalization and World Citizenship
POLS3502 Politics and the Global Economy
POLS4341 Political Leadership and Changing International Order
POLS4431 Politics of the Environment
POLS4462 Terrorism and Political Violence
POLS4511 U.N. and Human Security

Law and Political Theory
POLS2232 Political Thought and Theory
POLS2606 Ethics and Politics
POLS3011 Human Rights in Global Environment

POLS3327 Civil Rights and Liberties
POLS3345 Modern Ideologies
POLS3355 American Constitutional Law I
POLS3356 American Constitutional Law II

For further information on the program, please contact Dr. Bamidele A. Ojo, professor of political science, at 201-692-2630; or Dr. Samuel Raphalides, interim director, School of School of Criminal Justice, Political Science and International Studies, and professor of political science and history, at 201-692-2627.

Legal Studies Minor

The School of Criminal Justice, Political Science and International Studies offers a course of study for students who are interested in the field of jurisprudence and the legal profession. The legal studies program critically examines the historical and philosophical nature of civil and criminal law, legal reasoning and various legal systems and institutions. The minor offers students a selection of specifically designed courses, academic advisement, testing strategies and preparation and support services designed to assist students who anticipate applying to law school or graduate school. The program places a strong emphasis on the importance of the undergraduate student's course of study, grade point ratio (GPR) and performance on the Law School Admission Test (LSAT) — all of which play important factors for acceptance to law school. Emphasis is placed on reading comprehension, writing, critical thinking, deduction and analytical reasoning. The course CRIM3890 Legal and Analytical Reasoning places emphasis on these skill sets, which also provides students the opportunity to take practice LSAT exams.

The legal studies minor requires the student to successfully complete 15 credits of the following courses:
CRIM1120 Introduction to Jurisprudence
CRIM3319 Courts and Judicial Process
CRIM3890 Legal and Analytical Reasoning
POLS2253 American Government
POLS3355 American Constitutional Law I

Substitutions are permitted upon approval of the school director.

Political Science Minor

(For Non-Political Science or Non-International Affairs Majors)

The minor in political science provides students with an essential foundation in the study of political science. Barring approved course substitutions, the following courses are required:
POLS1101 Introduction to Political Science
POLS1102 Geography and World Issues
POLS2204 International Relations
POLS2231 Comparative Government and Politics
POLS2253 American Government

Combined Five-year B.A./M.P.A. Program

For the combined B.A. in political science/M.P.A. degree program, see page 212.

Psychology Major (B.A.)

School of Psychology

Requirements for the Bachelor of Arts Degree

The curriculum and courses, which will serve as preparation for graduate studies required for work in various fields of professional psychology, are designed to help all students develop a scientific understanding of human behavior. This major is particularly useful as an undergraduate background for those who will later enter such professions as law, social work, medicine, nursing and teaching, or for those who will move into managerial positions in industry or government.

The psychology major consists of 39 credits.

The psychology major is required to take the following courses:
PSYC1103 General Psychology
PSYC2201 Statistics
PSYC2204 Child Development
PSYC2234 Social Psychology
PSYC3202 Experimental Psychology
PSYC3315 Abnormal Psychology
PSYC3384 Theories of Personality
PSYC4500 Senior Seminar in Psychology

In addition to completing the basic liberal arts curricular requirements, the major also must take a minimum of 15 credits from any courses in the School other than those listed in the preceding column. Courses above the 1000 level are recommended as electives.

Specialized Tracks Within the Psychology Major

The specialization tracks within psychology consist of 39 credits. Specifically, students must complete the same required courses (24 credits) listed above along with 15 credits in the relevant area of specialization (e.g. social work, criminal justice, management, marketing, etc.). The track-specific requirements are listed on page 198. For further information on these tracks, contact the School of Psychology in Williams Hall on the Metropolitan Campus at (201) 692-2300.

Psychology

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

Clinical Social Work

The goal of the clinical social work track is to provide students with specialized course work and practical experience that will give them a competitive advantage when seeking employment in the field of social work following graduation or when applying to graduate programs in social work or related fields. The course work in this track introduces students to the profession of clinical social work, which emphasizes a broader approach to the study and treatment of mental health than do other mental health professions (emphasizing the development of a relationship-centered practice with individuals, groups and families). The track also includes an internship experience in which students will have an opportunity to integrate theory and practice through a practical experience that will help them develop skills and witness the difficulties associated with a range of human and social problems. Graduates of this track may end up working in one of many employment settings (for example, a community mental heath center, a child welfare agency, a rape crisis center, a substance-abuse treatment center or a head start program, to mention a few).

Required Track Courses (15 credits)

PSYC4391 Techniques of Psychotherapy
SOCI2115 Introduction to Social Work
SOCI3316 The Family: Stability and Dysfunction
SOCI3318 Health and Society: Access and Issues
SOCI3415 Internship in Social Work

Consumer Psychology

The goal of the consumer psychology track is to provide specialized course work related to the understanding of human responses to product- and service-related information and experiences. This interdisciplinary background will prepare students to work in private industry and nonprofit and government agencies in positions related to marketing research, advertising, designing/evaluating community-wide interventions, public health campaigns, social marketing, etc. This track is also ideal for students interested in graduate programs related to social psychology and industrial and organizational psychology.

Required Track Courses (15 credits)

MKTG2120 Principles of Marketing
MKTG3344 Marketing Research
MKTG4272 Consumer Behavior
MKTG4365 Marketing Communications
MKTG4405 Advanced Marketing Management

Forensic Psychology

The goal of the undergraduate track in forensic psychology is to provide students with specialized course work at the interface of psychology with the criminal justice system, hopefully preparing students for employment in some capacity that involves working in corrections facilities or in the community with released offenders on probation or parole. The course work in this track affords students an introduction to the dynamic fields of psychology and criminal justice, highlighing the integration of forensic science disciplines with training in psychological theory, methods and the application of psychological principles to specific areas of the legal system. Students enrolled in this track may receive experience at practicum sites to help facilitate the integration of theory and practice and will come away with an interdisciplinary background appropriate for careers in psychology, social work, law enforcement or other criminal justice professions.

Required Track Courses (15 credits)

CRIM1101 Introduction to Criminal Justice
CRIM2204 Juvenile Justice and Delinquency
PSYC3317 Psychology and the Law
PSYC3421 Psychology of Criminal Behavior
PSYC Field Placement
or
Internship in Psychology
or
Senior Independent Study in Psychology

Mental Health

The goal of the mental health track is to provide specialized course work and practical experience that will make students more attractive to employers (e.g., mental health services, child care, agencies, casework settings) immediately following graduation or give them a competitive edge when seeking admission to graduate school. The course work will afford an in-depth analysis of psychopathology from a developmental perspective and permit a greater understanding of various therapeutic approaches. At the same time, students receive "hands-on" experience at practicum sites of their choice to help facilitate the integration of theory and practice.

Required Track Courses (15 credits)

PSYC2126 The Interview
PSYC3305 Adolescent Growth and Development
or
PSYC3306 Psychology of Aging
PSYC3381 Field Placement
PSYC3393 Child Behavior Disorders
PSYC4376 Advanced Abnormal Psychology
or
PSYC4391 Techniques of Psychotherapy

Organizational Behavior/Human Resources

The goal of the organizational behavior/human resources track is to provide students with specialized course work in organizational processes and decision-making related to personnel selection, training and management. This interdisciplinary background will prepare students to work in private industry, nonprofit and government agencies in positions related to human resources and/or management consulting. This track is also ideal for students interested in graduate programs related to industrial and organizational psychology.

Required Track Courses (15 credits)

MGMT2600 Organizational Behavior
MGMT3700 Human Resources Management
MGMT3710 Strategic Staffing
MGMT3720 Training, Development and Performance Management
MGMT4730 Strategic HRM

Minors

Clinical Social Work Minor

(For Non-Psychology Majors)

A minor in clinical social work for non-psychology majors consists of 15 credits beyond the core.

Required Major Courses (15 credits)

Credits

SOCI1101
Introductory Psychology.....3
SOCI2115
Introduction to Social Work.....3

Credits

SOCI3316
Family: Stability and Dysfunction.....3
SOCI3318
Health and Society: Access and Issues.....3
SOCI3415
Internship in Social Work.....3

Students who are majoring in psychology are not permitted to enroll in this minor. Psychology majors may elect to complete the clinical social work track within their major and must complete a minor in another area.

Forensic Psychology Minor

(For Non-Psychology Majors)

A minor in forensic psychology for non-psychology majors consists of 15 credits beyond the core.

One Required Foundation Course

PSYC1103
General Psychology.....3

Two Required Major Courses (6 credits) from the following:

PSYC2201
Statistics.....3
PSYC2204
Child Development.....3
PSYC2234
Social Psychology.....3
PSYC3202
Experimental Psychology*.....3
PSYC3315
Abnormal Psychology.....3
PSYC3384
Theories of Personality.....3

Two Forensic Psychology Track Courses (6 credits) from the following:

PSYC3305
Adolescent Growth and Development.....3
PSYC3317
Psychology and the Law.....3
PSYC3319
The World of the Psychopath
or
Approved CRIM Course.....3
PSYC3421
Psychology of Criminal Behavior**.....3

**Prerequisite: PSYC2201 Statistics or equivalent in major (e.g. DSCI2130 Business Statistics).*
***Prerequisite: PSYC3315 Abnormal Psychology.*

Psychology Minor

(For Non-Psychology Majors)

A minor in psychology for non-psychology majors consists of 15 credits beyond the core.

One Required Foundation Course

Credits

PSYC1103
General Psychology.....3

Three Required Major Courses (9 credits) from the following:

PSYC2201
Statistics.....3
PSYC2204
Child Development.....3
PSYC2234
Social Psychology.....3
PSYC3202
Experimental Psychology*.....3
PSYC3315
Abnormal Psychology.....3
PSYC3384
Theories of Personality.....3

One Psychology Elective (3 credits)

B.A. in Psychology/ M.A. in Forensic Psychology Five-year Program

For details on this combined degree program, see page 213.

B.A. in Psychology/ M.A. in General/Theoretical Psychology Five-year Program

The School also offers a five-year B.A. in psychology/M.A. in general/theoretical psychology program. For more information, see page 214.

B.A. in Psychology/ Master of Social Work Five-year Program

(with New York University)

For details on this combined degree program, see page 216.

**Prerequisite: PSYC2201 Statistics or equivalent in major (e.g. DSCI2130 Business Statistics).*

Radiography Major (A.S.)

Henry P. Becton School of Nursing and Allied Health

Radiologic technology is a health care discipline that utilizes ionizing radiation for diagnosis of disease. The radiographer, a person who produces images of the human body for diagnostic purposes, is under the supervision of a physician.

The course of study to become a radiographer is an intensive, 24-month education that results in an Associate in Science degree in radiography with a **Certificate in Radiography**. It is designed for those who wish to learn the basic and specialized area of radiologic technology.

Students must apply to and be accepted by the Valley Hospital School of Radiology, Ridgewood, N.J., before entering the FDU radiology program.

Requirements for the Associate in Science Degree

1st Semester Credits

RADT1101
Introduction to Radiography and Protection.....3
RADT1105
Radiographic Procedures I.....4
RADT1110
Clinical Practicum I.....1
RADT1131
Principles of Radiographic Exposure I.....3
RADT1150
Fundamentals of Patient Care.....3
UNIV1001
Transitioning to University Life.....1
Total.....15

Winter Session I

RADT1120
Clinical Practicum II.....1

2nd Semester

ENWR1101
Academic Writing.....3
MATH1105
College Algebra.....4
RADT1130
Clinical Practicum III.....2

Radiologic Technology

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

Credits

RADT1135
Radiographic Procedures II.....4
RADT2251
Advanced Principles of Radiographic Exposure.....3
UNIV1002
Preparing for Professional Life.....1
Total.....17

Summer Session I

ENWR1102
Academic Research and Writing.....3
RADT1140
Clinical Practicum IV.....4
Total.....7

Second Year

3rd Semester

CSCI1105
Survey of Computers and Computer Software.....3
PHYS1114
Physics for Radiography.....3
RADT2250
Clinical Practicum V.....2
RADT2252
Radiation Biology and Safety.....2
RADT2255
Radiographic Procedures III.....4
UNIV2001
Cross-cultural Perspectives.....3
Total.....17

4th Semester

PSYC1103
General Psychology.....3
RADT2254
Radiographic Imaging Equipment and Quality Management.....2
RADT2270
Clinical Practicum VII.....2
RADT2271
Radiographic Pathology.....2
RADT2275
Radiographic Procedures IV.....4
UNIV2002
Global Issues.....3
Total.....16

Summer Session

RADT2280
Clinical Practicum VIII.....4

Radiologic Technology Major (B.S.)

Henry P. Becton School of Nursing and Allied Health

The Bachelor of Science degree in radiologic technology is an advanced standing/completion-degree program designed for the professional development of registered radiological technologists. The program's objectives are to provide educational opportunities for radiographers who have graduated from accredited programs with certificates/associate degrees and are certified/licensed to practice. The program also will provide career mobility and educational articulation for these students.

Registered radiological technologists who are graduates from an accredited two-year, hospital-based program may receive up to 54 transfer credits toward the Bachelor of Science degree, depending on the evaluation of the hospital training transcript. Graduates from an associate degree program may receive up to 60 transfer credits. Additional transfer credits may be granted for courses taken at accredited collegiate institutions.

The curriculum is interdisciplinary in structure and students may take courses on a part-time or full-time basis.

Requirements for the Bachelor of Science Degree

Requirements for the B.S. in Radiologic Technology for Registered Radiological Technologists

In addition to the 54 transfer credits, the following courses need to be completed.

Core Requirements (46 credits)

Foundation Courses (34 credits)

Credits

CSCI1105
Survey of Computers and Computer Software.....3
ENWR1101
Academic Writing.....3
ENWR1102
Academic Research and Writing.....3
MATH1107
Precalculus.....4
MEDT1130
Bioethics.....4
PSYC1103
General Psychology.....3
PSYC2201
Statistics.....3
SPAN1111
Spanish for Health Personnel.....3
SPCH1155
Public Speaking.....3
English Literature Elective.....3
History Elective.....3

Major Requirements (30 credits)

MEDT4301
American Health Care.....3
MEDT4302
Health Care Law and Policy.....3
MGMT2600
Organization Behavior.....3
MGMT3700
Human Resources Management.....3
NURS2210
Pathophysiology.....3
NURS3208
Introduction to Health Care Economics.....3
NURS4420
Health Care Management.....3
NURS4430
Nursing Research.....3
RADT4002
Advanced Radiological Science I.....3
RADT4003
Advanced Radiological Science II.....3

University Requirements (8 credits)

UNIV1001
Transitioning to University Life.....1
UNIV1002
Preparing for Professional Life.....1
UNIV2001
Cross-cultural Perspectives.....3
UNIV2002
Global Issues.....3

Requirements for the B.S. in Radiologic Technology for Those with an Associate in Science Degree

In addition to the 60 transfer credits, the following courses need to be completed.

Core Requirements (36 credits)

General Education Courses (28 credits)

CSCI1105
Survey of Computers and Computer Software.....3

	Credits
MATH1107 Precalculus	4
PSYC1103 General Psychology	3
PSYC2201 Statistics	3
SPAN1111 Spanish for Health Personnel	3
SPCH1155 Public Speaking	3
English Literature Elective	3

Major Requirements (33 credits)

MEDT1130 Bioethics	3
MEDT4301 American Health Care	3
MEDT4302 Health Care Law and Policy	3
MGMT2600 Organizational Behavior	3
MGMT3700 Human Resources Management	3
NURS2210 Pathophysiology	3
NURS3208 Introduction to Health Care Economics	3
NURS4420 Health Care Management	3
NURS4430 Nursing Research	3
RADT4002 Advanced Radiological Science I	3
RADT4003 Advanced Radiological Science II	3

University Requirements (6 credits)

UNIV2001 Cross-cultural Perspectives	3
UNIV2002 Global Issues	3

Science Major (B.S.)

School of Natural Sciences

Students seeking a baccalaureate degree, with a thorough grounding in the sciences, and desiring choice should consider the Bachelor of Science degree in science. The program is multidisciplinary, offering students maximum flexibility. The study of mathematics, for example, may be adjusted to meet the students' academic objectives. The curriculum can meet the entrance requirements for medical or dental school. Students must have a grade of C- or higher in all major course work.

The School of Natural Sciences has a strict "C-gate" policy for a number of its fundamental science classes. This policy is designed to ensure that students are well equipped to do their best in the higher-level courses by first mastering the basics. Students who have not obtained a minimum grade of C- in any course in the following sequences must repeat that course before attempting the next course in that sequence. This applies to both science and non-science majors. The C-gate sequence is CHEM1201 General Chemistry I, CHEM1202 General Chemistry II, CHEM2261 Organic Chemistry I, CHEM2262 Organic Chemistry II, PHYS2203 University Physics I and PHYS2204 University Physics II.

This applies to both science and non-science majors. Students must have a C- or higher in BIOL1251, BIOL1253 General Biology I; BIOL1252, BIOL1254 General Biology II; ENVR1111, ENVR1112 Oceanography; and MBIO1209 Introduction to Marine Biology to take a 2000- or higher-level science course.

Requirements for the Bachelor of Science Degree

Required Courses

	Credits
BIOL1251 General Biology I	3
BIOL1252 General Biology II	3
BIOL1253 Laboratory: General Biology I	1
BIOL1254 Laboratory: General Biology II	1
BIOL2300 Experimental Design	3
BIOL4405 Ethics in Science	3
CHEM1201 General Chemistry I	3
CHEM1202 General Chemistry II	3
CHEM1203 General Chemistry Laboratory I	1
CHEM1204 General Chemistry Laboratory II	1
ENWR1101 Academic Writing	3
ENWR1102 Academic Research and Writing	3
MATH1107 Precalculus	4
MATH1201 Calculus I	4
MATH2202 Calculus II	4
PHYS2201 Physics Laboratory I	1
PHYS2202 Physics Laboratory II	1
PHYS2203 University Physics I	3
PHYS2204 University Physics II	3
SPCH Oral Communication	3
UNIV1001 Transitioning to University Life	1
UNIV1002 Preparing for Professional Life	1
UNIV2001 Cross-cultural Perspectives	3
UNIV2002 Global Issues	3
Mathematics Elective	3
Total	62

Spanish Language and Culture

University College: Arts • Sciences • Professional Studies
Metropolitan Campus and Vancouver Campus

Distribution Requirements

Credits

Science concentration:
- Upper-division courses in a single concentration area of science (sciences other than physics, chemistry or biological sciences require the director's approval).....16

Science electives:
- Upper-division courses in any area of science outside the concentration.....12

Speech Course.....3
Humanities/Social Science Electives.....12
Degree credit will not be given for courses that are prerequisites to MATH1201 Calculus I.....18
Total.....61
Total credits for degree are 123.

Science Minor

(For Non-Science Majors)

Required 16-credit minor.

BIOL1251, BIOL1253
- General Biology I (Lecture and Laboratory).....4

BIOL1252, BIOL1254
- General Biology II (Lecture and Laboratory).....4

CHEM1201, CHEM1203
- General Chemistry I* (Lecture and Laboratory).....4

CHEM1202, CHEM1204
- General Chemistry II* (Lecture and Laboratory).....4

Spanish Language and Culture Major (B.A.)

School of the Humanities

Requirements for the Bachelor of Arts Degree

The school offers an undergraduate major in Spanish language and culture.

In addition to meeting the course requirements of the liberal arts core curriculum (SPAN2103, SPAN2104 Intermediate Spanish I, II), students majoring in Spanish are required to complete 36 credits in a combination of Spanish and culture courses. A minimum of 24 credits chosen from SPAN3000–4000 is required.

Language majors are encouraged to spend a semester or a summer abroad at an institution approved by the University.

The following courses are required for the major.

Major Requirements (36 credits)

Required Major Courses (24 credits)

Credits

SPAN3301
- Advanced Conversation in Spanish.....3

SPAN3435
- The Modern Spanish-American Short Story.....3

SPAN3439
- Latin-American Culture and Civilization.....3

SPAN3454
- Introduction to Latin-American Literature.....3

SPAN3455
- Introduction to Spanish Literature.....3

SPAN3456
- Spanish Culture and Civilization.....3

SPAN4437
- Advanced Composition in Spanish.....3

SPAN4440
- The Hispanic Novel: From Cervantes to García Márquez.....3

Recommended Electives (12 credits)

Credits

LANG3321
- Linguistics: Origin of Languages.....3

LANG3322
- Latin-American Women Authors.....3

SPAN3304
- Spanish for Careers.....3

SPAN4235
- Latin-American Media and Film.....3

SPAN4259
- Spanish Linguistics.....3

Spanish Language and Culture Minor

(For Non-Spanish Majors)

Non-Spanish majors may complete a minor in Spanish language and culture by completing the following 15 credits:

SPAN1101, SPAN1102
- Elementary Spanish I, II.....6

SPAN2103, SPAN2104
- Intermediate Spanish I, II.....6

SPAN3301
- Advanced Conversation in Spanish.....3

For students entering at the intermediate level, the following courses are recommended to fulfill the language and culture requirement:

SPAN2103, SPAN2104
- Intermediate Spanish I, II.....6

SPAN3301
- Advanced Conversation in Spanish.....3

SPAN4437
- Advanced Composition in Spanish.....3

Language and Culture Studies Course.....3

**Must be taken in sequence.*

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T. Montani, Associate Dean

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Department of Physical Education and Health
C. Liggett, Coordinator

Programs in Language, Culture and Professional Advancement
M. Mohamad, Director