

# Undergraduate Admissions

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### What Every Applicant Needs To Know

The Admissions Office represents the point of entry to undergraduate education at the University of Delaware.

When applying for admission, most students designate a major field of study, although students may enter as University Studies (undeclared) major status. Admission requirements vary among majors, and some academic units may require evidence of special skills. Students who apply to the Music Department, for example, will be asked to perform an audition and take a music theory and ear-training placement test. In addition, students who apply to the Art major will be required to submit a portfolio of works with their application. Acceptance to certain programs tends to be competitive because enrollment is limited.

In evaluating student applications, the Admissions Office considers a broad range of criteria, including the depth and rigor of the college preparatory program (and trend in grades); grades earned in specific courses (especially those related to an applicant's proposed field of study); overall grade-point index; class rank (if available); standardized test scores; student essays; letters of recommendation; and self-appraisal. With Delaware's increasing selectivity, grades of "B" and above are expected. The self-appraisal allows applicants to explain grades of "C" and below in their academic record. Evidence of special talents and abilities, recommendations from counselors and teachers, leadership qualities, and recognition in extracurricular and community activities also can support a favorable decision. Admission to the University or to a specific major will not be guaranteed on the basis of specific class rank, test scores, or pattern of high-school subjects or performance.

The University seeks a diverse student body, and it strives to provide equal educational opportunities for all students. Under special circumstances, some promising applicants may not meet all the requirements set forth in this document. The Admissions Committee, therefore, pays particular attention to applications from foreign and returning students; students with disabilities; veterans; and individuals whose secondary education, income level or

background have prevented them from meeting all admission requirements. Moreover, Delaware residents whose academic credentials do not initially support admission may reapply after successfully completing courses in the Division of Professional and Continuing Studies. (For more information about this option, consult with a member of the Admissions Office.) The University of Delaware reserves the right to refuse enrollment of any applicant. In addition, as it evaluates an application, the Admissions Committee always reserves the right to consider an applicant's personal conduct and ethical behavior as a factor in its decision.

New students (freshmen and transfers) are admitted into a specific major within one of the undergraduate Colleges, or they may be admitted without a major to the University Studies Program. Students interested in changing their major prior to enrolling should email the Office of Admission at [change-major@udel.edu](mailto:change-major@udel.edu). Some majors have enrollment limits and specific course requirements. The Office of Admission will process the requests and, if appropriate, change the intended major, provided the students meet specific requirements. Once the first semester begins, students interested in changing majors should consult with the appropriate department or college to which they are seeking admission.

The University is eager to provide educational opportunities for older students, who may pursue an undergraduate degree to expand career opportunities or simply to take part in an exciting intellectual environment. In many cases, mature students can complete degree requirements by taking courses in the Division of Professional and Continuing Studies. Qualified Delaware residents who are 60 years of age or older and who have been admitted to a degree program may attend undergraduate or graduate classes on a space-available basis without paying the application, course, registration, or other fees. Such students must cover the cost of books, laboratory supplies, and shop fees.

### How Can I Apply?

Prospective students may fill out an online application at [www.udel.edu/apply](http://www.udel.edu/apply) or may request an application by calling the Admissions Office at (302) 831-8123 or sending e-mail to [admissions@udel.edu](mailto:admissions@udel.edu). Students must submit the application (including Secondary School Report

and Recommendation Form) along with a check in the amount of \$75 by the deadline for their admission category. The following requirements must be met.

1. Applicants to the University must be graduates of accredited secondary schools or have equivalent credentials.

2. Applicants should graduate in the upper half of their high school classes, preferably in the uppermost percentiles.

3. Applicants are required to submit SAT scores and/or ACT scores (including results of The Writing Test) directly from the appropriate testing agency. For placement and advisement purposes, applicants are encouraged to submit scores on either the SAT Subject Tests or Advanced Placement Tests in their discipline.

4. Applicants should have a firm grasp of the basic academic skills of reading, writing, mathematics, sciences, and foreign languages, as well as a strong commitment to academic achievement and learning. In some cases, the University may consider alternate proof of ability and seriousness of academic purpose. But, the best evidence is a strong high-school record with a wide range of courses, including the following course work taken in the 9th-12th grades. While minimum units are specified below, most of our admitted students take more than the minimum. The academic profiles of the most competitive applicants will exceed the minimum requirements.

a) Four years of college preparatory English, including courses with extensive writing components.

b) Three years of college preparatory mathematics. (Four years is recommended. For students in business and economics, engineering, mathematics, physics, computer science, nutritional sciences, and food science, four years of mathematics, including trigonometry, precalculus, or calculus, are strongly recommended.)

c) Three years of science, including two years of a laboratory science. (For study in the sciences or in related fields such as nursing, nutritional sciences, food science, or engineering, four years of science, including three years of a lab and a physics course, are strongly recommended.)

d) Four years of social sciences, which must include two years of history, one of which should be world history.

e) Two years of study in the same foreign language. (Four years of study in the same foreign language is strongly recommended.) Candidates for the Bachelor of Arts degree and many Bachelor of Science degrees must demonstrate intermediate-level proficiency in a foreign language. This requirement can be met in one of two ways:

1. Completion of the intermediate level course (107 or 112) in a given language.

2. Successful completion of an exemption examination by students who have completed four or more years of high school work in a single foreign language.

f) Two years of academic electives in fields such as English, mathematics, foreign languages, history, and social sciences or science. Academic electives do not include, for example, sports activities or driver education. The University urges high school students to take as many mathematics and foreign language courses as possible, with special attention to the selection of senior-year courses.

g) All entering students must submit a Personal and Family Medical History Form, verifying proper immunization against measles, mumps and rubella.

See [www.udel.edu/shs/immun/index.html](http://www.udel.edu/shs/immun/index.html) for current immunization requirements.

## **We Are Committed to Delawareans**

The residents of our home state have always enjoyed a special relationship with the University of Delaware. That is why we offer admission to every Delaware applicant who demonstrates the ability to succeed at the University. In fall 2006, the University of Delaware established the "Commitment to Delawareans," an academic roadmap showing Delaware residents how they can best prepare themselves for admission to the University of Delaware. Specifically, the University makes this commitment: If a student meets all of the requirements specified in the Commitment, then he or she can be confident of being admitted to the Newark campus of the University of Delaware and will be formally notified of admission on a rolling basis starting January 1 of their senior year of high school. If a student files the Free Application for Federal

Student Aid (FAFSA), the University will meet full, demonstrated need up to in-state tuition, fees, a stipend for books, and, if the student is living on campus, room and board with a combination of grants, loans, and/or college work-study. Further, the University will work to ensure that a student's indebtedness upon completion of a four-year course of study is kept to a minimum, with the goal being 25% of the cost of a four-year education at UD. Additional information, including a complete guide to requirements, can be found at [www.udel.edu/commitment](http://www.udel.edu/commitment).

### **Transfer Students Are Welcome, Too!**

Prospective transfer students should submit the online Transfer Application for Undergraduate Admission, official post secondary transcript(s), official high school transcript, transfer statement, and letter of recommendation. In general, transfer applications should have a minimum 2.5 GPA in all college-level work. Some majors require a higher grade-point index, along with specific course work.

To be considered for admission, transfer students must be in good standing with their current or most recently attended institution. The transfer applicant's total academic credentials are considered, including previously achieved grade-point index, the type of institution attended, performance in specific courses relating to the proposed field of study, and statement of interest in attending the University of Delaware. Application information may be found at [www.udel.edu/apply](http://www.udel.edu/apply).

The University of Delaware accepts baccalaureate credits from institutions that are fully accredited by an appropriate regional accrediting association. Credits for college-level courses must be completed with a grade of "C" (2.0) or higher and be applicable to a degree program offered by the University. Pass/Fail grades are not accepted. Approved transfer coursework is universally accepted across all Colleges within the University. Except for approved Connected Degree Programs, transfer credits from community colleges are generally accepted as equivalent to lower-division (100-200 level) coursework at the University of Delaware. Students who want to know whether the course(s) they are taking or plan to take will transfer to the University of Delaware may consult <http://primus.nss.udel.edu>.

[edu/transfercredit/index.action](http://www.udel.edu/transfercredit/index.action). The Dean's Office, within the admitted student's College, will make the final determination of how transfer credits apply to the student's degree program and graduation requirements. Departments may require applicants to repeat outdated courses and/or course work completed more than seven calendar years earlier. The University of Delaware uses the following formula to convert quarter hours to semester hours:  $\text{quarter hours} \times \frac{2}{3}$  (or  $.667$ ) = semester hours.

A special agreement between Delaware Technical & Community College, Delaware State University, and the University of Delaware guarantees transferability of certain courses among the three institutions. For more information, see the online Transfer of Credit Matrix at [www.central.dtcc.edu/matrix](http://www.central.dtcc.edu/matrix).

Transfer students are required to complete 90 of the first 100 credits or 30 of the last 36 credits, full or part-time, at the University of Delaware. Work completed elsewhere is not included in the overall scholastic index used to determine eligibility for graduation; candidates for the baccalaureate degree must achieve at least a 2.0 grade point index for work taken at this University.

### **International Students Enrich Our Community**

International students attending the University of Delaware represent over 100 countries. The Office for International Students and Scholars assists these individuals in adapting to their new environment and to the American educational system. (Please see chapter on "Resources for Students.") English tutoring, orientation seminars, "homes away from home," educational field trips, and participation in community activities are included in the program for international students.

In addition to the online University of Delaware International Application for Undergraduate Admissions, international students must submit a Summary of Educational Experiences form, Confidential Financial form, and a certified bank statement from their sponsor showing enough funds to cover their educational expenses. These forms may be found online at [www.udel.edu/apply](http://www.udel.edu/apply).

Also, non-native speakers of English are required to demonstrate proficiency in English

by submitting the results of the Test of English as a Foreign Language (TOEFL) or official International English Language Testing Systems (IELTS) report. International students who need to improve their English skills but meet the University's academic requirements may be admitted through the Conditional Admissions Program. These students must complete the University's English Language Institute Level VI English for Academic Purposes program with grades of "B" or better before beginning regular university courses. Under federal law, the University is permitted to enroll nonimmigrant foreign students.

### **Meet The Challenge Of The Honors Program**

Students apply to the University Honors Program by completing the Honors section of the Application for Undergraduate Admission. (Read more about this program in the "Opportunities to Enrich Your Undergraduate Education" chapter.) Honors students may select any academic major on campus. Although there are no rigid test-score or grade-point cutoffs, certain levels of achievement are typical of Honors students. Most Honors freshmen are in the top 5 percent of their high school graduating class, and nearly all are in the top 10 percent. The program enrolls fewer than 500 freshmen each year. Last year, the middle 50 percent of students admitted to Honors had high-school grade-point averages between 3.80 and 4.00 (on a 4-point scale), and Scholastic Aptitude Test scores between 2000 and 2150. The Honors Program welcomes applications from freshman- and sophomore-level transfer students.

For more information, call (302) 831-1195 or visit [www.udel.edu/honors](http://www.udel.edu/honors).

### **Apply On Time!**

For September (fall semester) admission, all application materials should be sent to the Admissions Office by the deadline specified in the current undergraduate admissions application; to be assured full consideration for all programs and scholarships, all materials should be received by December 1. For February (spring semester) admission, all application materials should be sent to the Admissions Office by November 1.

High School Work May Equal College Credit

The University recognizes competencies attained through its courses, through courses completed in secondary school, and through independent study. Students may earn Advanced Placement (A.P.) or International Baccalaureate (I.B.) test credit by sending their official score report to the Office of Admissions. For more information regarding possible test credit, contact the Admissions Office or go online to <http://admissions.udel.edu/apply/ap-ib>.

Alternatively, credit based on examination results may be offered for some curricular areas. (See the "Earn Credit by Examination" section in the "Undergraduate Academic Regulations" chapter.)

### **Enter Delaware At The Time That's Right For You**

Admission or readmission to the University is granted for a specific semester, fall or spring. All offers of admission or readmission are contingent upon maintaining a satisfactory academic performance and a positive personal record. The University may cancel the acceptance of any student who fails to matriculate in the specified semester and/or who fails to successfully complete all coursework in progress. Any requests for deferred admission should be submitted in writing to the Admissions Office. The student's credentials are reevaluated in such cases, and the request may be granted, depending on the availability of space. In no circumstance will the Admissions Office return applications and supporting materials once they are submitted for consideration.

### **Academic Renewal May Allow You To Start Over**

When a student leaves the University and later applies for admission or readmission, he or she may wish to enter with a "clean slate." Students who return to the University after a separation of at least five calendar years are eligible for academic renewal if they earn a "C" or better in each course for 12 semester hours after returning to the University. In such cases, grades from previously taken courses are not included in the calculation of the GPA.

The following regulations govern this option:

1. Students must consult with the dean of the college in which the student plans to major, and course selection must be approved in writing

before the student registers.

2. The request for academic renewal will be processed after successfully completing 12 credit hours worth of course work.

3. All courses and grades will remain on the student's transcript and will be identified.

4. Credits completed prior to readmission with a grade of "C-" or better may be counted toward the degree.

5. A minimum of thirty additional credits applicable toward the degree must be earned following the Academic Renewal. These thirty credits may include the 12 credits required under #2 above.

6. Academic renewal can be granted only once during the student's enrollment at the University.

### **DelaWorld 101 - New Student Orientation**

DelaWorld 101 is the University's New Student Orientation. During the summer, students accomplish academic tasks that must be completed to ensure a smooth first semester, and return in the fall for programs that ease the actual transition into the University environment. DelaWorld information is mailed to all new students in early June.

Summer. During late June/July (for the fall semester) all new students are expected to spend one full day on campus, participating in the DelaWorld 101 activities. (Special orientation activities are planned for parents, too.) Student activities typically include a meeting with an academic advisor, registration for first-semester classes, and opportunities to meet new and current students. After completing these activities, students receive their official University of Delaware identification card, the UD#1 card.

Fall. To help students feel welcome and clarify their role in the University community, Fall DelaWorld takes place just prior to the fall semester. These activities, including informal meetings, group discussions, workshops, and social activities, give students a chance to meet faculty, staff, and other classmates. Students also are encouraged to explore academic and co-curricular opportunities.

Spring. New students entering for the spring semester are also strongly encouraged to participate in spring DelaWorld activities offered in January and February.

All newly matriculated freshman and transfer students, part-time and full-time, are required to pay a one-time, \$85\* New Student Orientation fee to cover the costs associated with all New Student Orientation events and activities. This fee is required regardless of the student's participation in this program.

\*\$70 for students matriculating in the spring semester.

### **Earn An Associate Degree En Route To The BA Or BS**

Students may enter the University by earning an Associate in Arts (A.A.) or Associate in Science (A.S.) degree in one of three colleges: Arts and Sciences, Agriculture and Natural Resources, or Education and Human Development. A minimum of 60 credits is required for the Associate in Arts degree, while the Associate in Science degree requires a minimum of 60 to 62 credits. For part-time students, an associate degree can be a valuable intermediate goal, bridging the period between matriculation and the completion of a four-year baccalaureate degree. In some cases, it may be possible for students who hold jobs during the day to earn an associate degree by attending evening classes on a part-time basis. In addition, the entire Associate in Arts curriculum is available as a distance learning option for students who are outside Delaware.

The Associate in Arts Program is designed for students we believe would benefit from additional support, including small classes, individualized attention, and a structured curriculum before relocating to the Newark campus. As a non-residential program, tuition is reduced and students may also qualify for the State of Delaware SEED Scholarship Program. The lower tuition and the eligibility for a SEED scholarship apply only to UD students who enroll in the Associate in Arts Program. Therefore, students who take advantage of the lower tuition or a SEED scholarship should realize that they must be willing to spend two full years in the program and complete the Associate Degree before being permitted to enroll on the Newark campus.

Additional fees and tuition may be applicable for the online Associate in Arts degree, depending upon the student's state of residence.

### **Admission Requirements.**

Admission requirements for associate degrees are similar to the corresponding baccalaureate degree requirements. Prospective students must demonstrate scholastic aptitude, motivation for academic attainment, and adequate preparation for the degree curriculum. Successful completion of appropriate Professional and Continuing Studies courses may satisfy these requirements in some cases.

Credits from another institution may be transferred. To be eligible for an associate degree, however, the student must complete more than half the required credits at the University of Delaware. Professional and Continuing Studies students who have not yet been formally admitted to a degree program are encouraged to apply at the earliest possible date, and no later than earning 75 credits. (To receive an associate degree, Professional and Continuing Studies students must earn at least 12 credits after formal admission to the University.)

Students who have been admitted directly to a bachelor degree program may qualify to earn an associate degree en route to their bachelor degree; application for the associate degree must be made prior to earning 75 credits.

### **Degree Requirements.**

Specific degree requirements are listed in the Arts and Sciences, Agriculture and Natural Resources, or Education and Public Policy undergraduate program chapters in this catalog. A minimum grade-point index of 2.0 is required for all associate degrees.

### **General Information.**

For more information about associate degrees and admission requirements, or for catalogs and needed forms, call the Office of Admissions (302 831-8125), the Division of Professional and Continuing Studies ACCESS Centers (302 831-2741), the College of Agriculture and Natural Resources (302 831-2508), or the Associate in Arts office (302 831-0628). Educational

counseling and academic advisement are available in Wilmington, Newark, Dover and Georgetown.

Students should also consult the Associate in Arts website [www.udel.edu/associateinarts](http://www.udel.edu/associateinarts).

### **Enjoy Flexibility With Interinstitutional Degree Programs**

The University of Delaware, in cooperation with Delaware Technical & Community College, offers opportunities to continue toward a baccalaureate degree to students who complete associate degrees in specific technologies. Students in some majors may complete degree requirements by taking courses at University facilities in southern Delaware. It may be possible for part-time students to complete course work during the late afternoon and evening.

For information on the curriculum in associate/bachelor's Connected Degree Programs currently available to graduates of Delaware Technical & Community College, please consult the contacts listed below.

Biology/Biotechnology  
Professor David Usher - 831-6685

Chemistry  
Dr. John Burmeister - 831-1130

Criminal Justice  
Professor Eric Rise - 831-8679

Early Childhood Education  
CEEP Student Support Services - 831-2301

Electrical Engineering  
Professor Charles Boncelet - 831-8008

Engineering Technology  
Professor William Ritter - 831-2468

Food and Agribusiness Management  
Professor Steven Hastings - 831-1318

Health Behavior Science: Fitness Management  
Professor Elizabeth Orsega-Smith - 831-6681

Human Services  
College of Education and Public Policy Student Support Services - 831-2301

Mathematical Sciences B.A. or B.S.  
Professor David Edwards - 831-1871

Mathematics Secondary Education  
Professor Jinfa Cai - 831-1879

Medical Technology  
Professor Anna Ciulla - 831-2849

Nursing  
Professor Karen Avino - 831-8506

All telephone numbers are in area code (302).

### **Admission**

To be eligible for the interinstitutional baccalaureate program, students must earn an associate degree or the equivalent in an appropriate technology from Delaware Technical & Community College. In most cases, associate-degree course work completed with a grade of "C" or better can be transferred to the University. The balance of the bachelor's degree requirements must be satisfied by completing University courses.

# Opportunities to Enrich Your Undergraduate Education

## Opportunities to Enrich Your Undergraduate Education

### Meet The Challenge Of Enriched Degree Options

The Honors Degree with Distinction, the Honors Degree, the Degree with Distinction and the Dean's Scholars Programs allow exceptionally talented and dedicated undergraduate students to pursue their academic interests in greater depth and breadth than is required for the regular bachelor's degree. Achievement of the Honors Degree, Honors Degree with Distinction, and Degree with Distinction is recorded on the official transcript and diploma. Honors Degree and Honors Degree with Distinction

The Honors Degree and the Honors Degree with Distinction are Delaware's most comprehensive enriched undergraduate degree experiences, and are currently available in more than 100 majors (please see the Synopsis of Honors Baccalaureate Degrees chart). The Honors Degree recognizes a student's excellent performance in Honors coursework in and outside the primary major. The Honors Degree with Distinction recognizes a student's completion of the research requirements for the Degree with Distinction in addition to the successful pursuit of Honors coursework throughout the degree program.

The complete requirements for an Honors Baccalaureate Degree are as follows:

I. The requirements for the baccalaureate degree in the major (including all University and college requirements), as well as any other specific requirements the major department may set for the Honors Degree.

II. The general requirements for the Honors Degree:

1. University of Delaware cumulative grade-point index of no less than a 3.400 at the time of graduation.

2. At least 30 credits earned in Honors courses. Of these Honors credits:

1. At least 12 must be in the major department or in closely related courses in collateral disciplines specifically required for the major.

2. At least 12 must be taken at the 300 level or higher, not including the first-year interdisciplinary Honors colloquium (which is usually numbered 390).

3. Three credits must be in an Honors

Degree seminar or Honors capstone course experience approved by the student's major department and the University Honors Program, to be completed in the last 2 semesters of a student's degree program.

4. Plus additional Honors credits as needed to reach the 30 required Honors credits.

III. Submission of the Honors Degree Application Form to the University Honors Program by May 15 the year before a student is planning to graduate.

A minimum grade of C- is required in Honors courses counting toward the Honors Degree. Honors coursework taken pass-fail cannot count for the Honors Degree unless the course is only offered pass-fail.

The complete requirements for an Honors Baccalaureate Degree with Distinction are as follows:

I. The complete requirements for the Honors Baccalaureate Degree (see above).

II. Six credits of Honors thesis or project (UNIV 401/UNIV 402) and the successful oral presentation of an acceptable thesis or project to a committee of faculty approved by the major department, the Honors Program, and the Undergraduate Research Program.

1. Six credits of Honors thesis may be counted as part of the 30 Honors credits required for the Honors Degree.

2. Completion of any additional specifications for the thesis or project set by the major department.

A minimum grade of C- is required in Honors courses counting toward the Honors Degree with Distinction. Honors coursework taken pass-fail cannot count for the Honors Degree with Distinction unless the course is only offered pass-fail. Degrees With Distinction

A Degree with Distinction, which may be earned in any undergraduate major, is a research degree. Like the Honors Degree with Distinction, it includes a senior thesis or creative project with an oral defense before a faculty committee. Students receive a bachelor's degree in the appropriate college and major with the notation that it was earned "with distinction."

Candidates for the Degree with Distinction must meet the following conditions:

A. At the time of graduation, the candidate's cumulative grade-point index must be at least 3.00 and his or her index in the major must be at least 3.50.

B. The candidate must complete six credits of thesis or project (UNIV 401 and UNIV 402) and give an oral presentation and defense of the thesis or project to a committee of faculty from the major department and related fields.

The Degree with Distinction entails no change in the regular requirements of a student's program other than preparation and defense of a senior thesis or creative project. Dean's Scholars Programs

The Dean's Scholar Program exists to serve the needs of students whose clearly defined educational goals cannot effectively be achieved by pursuing the standard curricula for all existing majors, minors, and interdepartmental majors sponsored by the University. Driven by an overarching passion or curiosity that transcends typical disciplinary bounds and curricula, a Dean's Scholar's intellectual interests may lead to broad interdisciplinary explorations of an issue or to more intense, in-depth studies in a single field at a level akin to graduate work. In consultation with faculty advisors and the Associate or Assistant Dean of their college, Dean's Scholars design an imaginative and rigorous individual plan of study to meet the total credit hours required for graduation. The Dean's Scholar Program is available in the Colleges of Agriculture & Natural Resources; Arts & Sciences; Business & Economics; Earth, Ocean, & Environment; Engineering; Health Sciences; and Education & Human Development. Working in conjunction with the Honors Program, Dean's Scholars in Agriculture & Natural Resources; Arts & Sciences; Health Sciences; and Education & Human Development may qualify for Honors Degrees. More information and the application procedures can be found at [www.udel.edu/deansscholar/](http://www.udel.edu/deansscholar/).

### **The Honors Experience: More Than A Degree Program**

The University of Delaware Honors Program (UDHP) serves the many exceptionally talented undergraduate students who choose the University of Delaware. Eligible undergraduates study in smaller classes, where they receive

special guidance from faculty members. Academic options for these students include a variety of Honors courses, undergraduate research, private music study, the Honors Foreign Language Certificate, the General Honors Award, four-year Honors Degrees in many majors, and the Degree with Distinction in all majors. (See the Degree Options section.) Extensive extracurricular programming occurs in the Honors residence halls.

Honors Program students may pursue a course of study in any of the University's undergraduate majors. Honors degrees are available in over 100 majors. For students who apply to enter the program during their first semester, Honors activities during the freshman year provide the educational foundation to conduct advanced study in any field. The freshman year also draws students into the campus community, promoting faculty-student interaction and shared interests among participants. Full-time Honors freshmen enroll in 12-15 credits of Honors courses, including an Honors ENGL110 course and an Honors Colloquium, during their first year. Honors freshmen establish a close relationship with faculty advisors that continues throughout their academic careers.

There is no added fee for participation in the Honors Program.

The University Honors Program has offices in 186 South College Avenue. Please call (302) 831-1195 or visit [www.udel.edu/honors/](http://www.udel.edu/honors/) for more information. Honors Courses

Honors courses are offered each semester, in a wide array of disciplines. Honors courses provide highly motivated students an opportunity to interact intensively with faculty and other students in active-learning courses. These range from one-credit short courses and tutorials to interdisciplinary colloquia, undergraduate research, and independent study.

\* Honors Colloquia. Each of these 3-credit interdisciplinary seminars for first-year Honors Program students is served by a Writing Fellow - a specially trained peer tutor who helps students refine the form, but not the content, of their papers, prior to grading by the instructor. Recent colloquia topics have included "Choosing the President," "The Lessons of Vietnam," "Imagination, Creativity, and Expression," and "Shakespeare's Classical World."

\* Honors ENGL110 sections. These specially

designed freshman composition courses allow Honors first-year students to explore a variety of topics while improving their writing skills and fulfilling this University requirement.

\* Honors Tutorials. With a maximum of six to eight students and one faculty member, a tutorial meets weekly for careful study of classic literary and philosophic texts. These courses satisfy the senior capstone requirement for the Honors Degrees.

\* Honors Degree Seminars. These upper-division interdisciplinary seminars satisfy the senior capstone requirement for the Honors Degrees.

\* Study Abroad. Honors courses may be arranged as part of the University's numerous and varied Semester Abroad and Winter Session Abroad programs. Students also may complete research abroad through the Science and Engineering exchange with Imperial College, London. Foreign Study Scholarships, open to all students, are available to defray travel expenses for every University-sponsored program. For scholarship information, contact the Center for International Studies, (302) 831-2852; <http://international.udel.edu/studyabroad/default.asp>.

Full-time matriculated undergraduate students not in the Honors Program are eligible to take Honors courses provided they have completed a minimum of 12 credits at the University and have a University of Delaware cumulative GPA of 3.00 or higher. Priority seating in Honors courses is always given to eligible Honors Program students. Students not in the Honors Program who meet the necessary criteria may contact the Honors Program office prior to the start of the semester to request Honors courses if seats are available.

Any University student who has a minimum 3.40 GPA and has taken two Honors courses and received a grade of B or better may apply for formal admission to the Honors Program. To be reviewed, a student must present a transcript, two letters of recommendation from Honors program faculty, and a completed application form (available at [www.udel.edu/honors/](http://www.udel.edu/honors/) or in the Honors Program Office). Applications are reviewed twice a year (October 15 and March 15); an appeal of the committee's decision may be made to the Director of the Honors Program, who is not a member of the committee itself, and whose decision is final.

Students admitted to the Honors Program must maintain a GPA of 3.00 in the first year to

take Honors courses and remain in the Honors Program. First semester freshmen who fall below a 3.00 will be placed on probation and will be notified about their probationary status. They will not be allowed to take honors courses while their GPAs remain below 3.00. If their GPAs remain below 3.00 at the end of their first year, they will be contacted and removed from the Honors Program.

After the second year and in subsequent years, Honors Program students must maintain a minimum of a 3.20 overall GPA. All Honors Program students will be reviewed yearly. Any Honors students falling below a 3.20 GPA at the end of any year of study will be contacted and removed from the Honors Program.

A student who is removed from the Honors Program will be eligible to take Honors courses again once the student's overall GPA improves to a 3.00 or higher. Former Honors Program students wishing to reapply to the program may do so after their overall GPAs improve to a 3.40 or higher. For information on readmission to Honors, see the Honors Program web site [www.udel.edu/honors/](http://www.udel.edu/honors/). General Honors Award

The General Honors Award provides recognition of a student's pursuit of Honors challenges and enrichment opportunities during the first two years of university study. Receipt of the General Honors Award is recorded on a student's permanent transcript.

The complete requirements for the General Honors Award are as follows:

1. Eighteen credits of Honors coursework completed within the first two years of study, with a minimum of 12 credits required in the first year.
2. Three credits of the 12 credits completed in the first year must include an interdisciplinary Honors colloquium course.
3. Three credits of the 12 credits completed in the first year must include an Honors ENGL110 course.
4. A minimum GPA of at least 3.200 at the conclusion of the first two years of study at the University.
5. A minimum of 60 credits (including advanced placement and transfer credits) must be completed by the end of the second year, at least 54 of which must be earned at UD.
6. Residence in first-year Honors housing is required during the first year of study.

7. A minimum grade of C- is required in all Honors courses counting toward the General Honors Award. 8. Honors coursework counting toward the General Honors Award cannot be taken on a pass-fail basis unless the course is only offered pass-fail.

### **The Honors Foreign Language Certificate**

The Honors Foreign Language Certificate is available to students in majors other than Foreign Languages and Literatures. For information on this opportunity, see the Foreign Languages and Literatures section of this catalog. The Alison Scholars Program

The Alison Scholars Program is available, by invitation only, to a few selected Honors students who have a great love for the humanities and/or social sciences and are likely to be candidates, not only for graduate or professional school admission, but also for prestigious awards and graduate fellowships, including the Rhodes, Marshall, Truman, and Gates competitions. The program is named after Dr. Francis Alison, a colonial scholar and founder (in 1743) of the New London Academy, the forerunner of the University of Delaware.

Faculty mentors and Honors Program staff help the Alison Scholars, and all the other Distinguished Scholars, plan their educations and provide an early introduction to enriching activities, such as undergraduate research, study abroad, community service, internships, and service-learning experiences.

At Delaware, all College of Arts and Sciences students must complete a liberal arts core known as "Breadth Requirements." While Alison Scholars must fulfill these requirements, with advisement they have greater freedom in the particular courses they choose; this freedom is designed to facilitate speedier entry into upper-level or graduate courses.

Alison Scholars are selected in March from the incoming students majoring in Arts and Sciences who have been offered admission into the University Honors Program. The Writing Fellows Program

The Writing Fellows Program is a peer tutoring program that trains advanced undergraduate peer tutors to assist faculty in providing one-on-

one instruction in writing to students enrolled in first-year Honors colloquia and other writing-intensive courses. It creates and supports a close intellectual community for students who are interested in the writing process. The Fellows gain valuable experience in teaching as well as in editing, and they often form close and productive relationships with the faculty members for whom they work. These Fellowships are also seen as significant and relevant achievements in admissions to graduate school, law school, academic internships, and jobs pre- and post-graduation. For more information, call (302) 831-6560. Private Music Instruction

Belonging to a diverse student body is an important part of the Honors Program experience at UD. Undergraduate research, study abroad, unique Honors course offerings, and the many Honors extracurricular activities allow Honors students to pursue their own particular enthusiasms.

Private Music Instruction is yet another way of fostering individual talent. Typically, an unusually large percentage of Honors-calibre students are also accomplished musicians. Most of these students do not intend to major in music or to pursue a musical career. Nevertheless, they are quite serious about their music study. The Private Music Instruction option is designed to assist them.

Freshmen who are in the Honors Program may receive individual music instruction by passing an audition conducted by the Music Department. (Auditions are held at the start of fall semester; information on registering for them is provided in Delaworld 101 new student orientation.) Please bear in mind that this program assumes that a student is already proficient in his or her instrument: it is not a program for beginners and placement is highly competitive. This option is designed for non-Music majors and minors. Typically eligible students take private music instruction in the fall semester of the first year. Continuation into the spring semester of the first year may be possible but is not guaranteed. After the freshman year a limited number of Music Merit Awards may be available through the Music Department to allow non-Music majors and minors the ability to continue their music instruction.

The Department of Music offers instruction in string instruments, brass and woodwinds, keyboard instruments, percussion, and voice.

There are also extensive opportunities for all students to participate in music ensembles.

For more information, please telephone the Music Department, (302) 831-2577 or the Honors Program, (302) 831-1195. Life In Honors Residence Halls

Full-time Honors freshmen live in the Russell Residence Complex, situated in East Campus, a popular location that is a short walk from the University's Morris Library. East Campus is also home to the Perkins Student Center, the Harrington Fitness Center, and the Harrington Computer Site (which includes both IBM-compatible and Macintosh computers). Russell has its own dining hall. Living in the Russell complex is a requirement for the first year in Honors, although it is possible to obtain a waiver of this requirement if a student plans to live at home and commute to campus.

Honors freshmen live primarily with other Honors students; however, they are not isolated from the rest of the campus. They share a sense of community with each other, while participating fully in University-wide activities.

Upperclass students in Honors reside wherever they choose. Some move to upperclass Honors floors or to other special-interest housing; others choose conventional housing on- or off-campus. Upperclass Honors housing is available in North Central in Brown, Sypherd, Harter, and Sharp Halls and in South Central in Cannon and New Castle Halls on the beautiful University of Delaware Green. Honors Program students with a minimum 3.00 CUM GPA are guaranteed a space in upper class Honors housing. Russell Fellows

Russell Fellows are upperclass Honors students who live in the Russell Complex and mentor the Honors freshmen. Russell Fellows help the freshmen adjust to college life, and plan on-campus activities and off-campus excursions, including trips to New York City, Philadelphia, Baltimore, and Washington for athletic events, concerts, museum tours, and theatre performances. Senior Fellows

Senior Fellows are upperclass Honors students who volunteer to coordinate academic, cultural, and social programming on- and off-campus for students living in upperclass Honors housing, with special emphasis on programs that include interaction with University faculty. Freshmen

## Fellows

Freshmen Fellows are freshmen living in Russell Complex who assist Russell Fellows with on- and off-campus programming.

## General Education Initiative (GEI)

The General Education Initiative (GEI) provides the foundation from which all students have the opportunity to develop to their full potential. Students, through participation in the First Year Experience, Discovery Learning Experiences, Capstones, and their academic coursework, have the opportunity to gain skills and knowledge that will enable them to achieve the UD 10 Goals to Success. These goals are designed to prepare students for life in the technologically sophisticated, diverse, highly communicative and globally integrated world in which they will live and work; and to offer students the opportunity to expand their own horizons, areas of interest and intellectual development.

The 10 Goals to Success are found at <http://www.ugs.udel.edu/gened/>

## First Year Experience (FYE)

The First Year Experience is the first step in an exciting educational journey that helps students find their place at the University of Delaware and build strong social and academic foundations. All first year students (including University Honors Program) at the University are required to participate in a First Year Seminar. The First Year Seminar assists students in adjusting to college life and provides a unique learning experience. Students have the opportunity to explore the University of Delaware and learn about those things that are vital to their success. Students are housed in residence halls across campus according to their First Year seminar. For more information see: [www.udel.edu/fye](http://www.udel.edu/fye)

## FIRSTYEAR EXPERIENCE STUDY ABROAD

FYE study abroad programs are organized for only first year students. FYE study abroad programs occur during Winter Session. Past programs have been in London, England; Costa Rica; Grenada, Spain; Merida, Mexico; and Sydney, Australia.

## Discovery Learning Experience (DLE)

Discovery learning takes place when students use their knowledge and skills acquired through traditional classroom experiences to discover, for themselves, effective actions, alternatives and solutions to situations and/or problems that occur in “real-life” contexts; that is, contexts that are unpredictable, where problems and situations are complex and lack clear definitions. These contexts are primarily outside of the classroom and include internships, service learning, independent study, undergraduate research, and study abroad. However, they may also occur within a classroom experience.

All undergraduate students are required to engage in three credits of Discovery Learning Experiences (DLE), under the supervision of a faculty member. As a result of the Discovery Learning Experience, all students should be able to: 1) apply critical thinking skills to develop effective responses to, and make informed decisions about, problems or situations encountered in the course of the learning experience; and 2) reflect upon what they have learned as a result of participating in the DLE.

Further information:

<http://www.ugs.udel.edu/DLE/index.htm#dlestaff>  
<http://facsen.udel.edu/sites/DLE.aspx>

## UNIV COURSES

University (UNIV) courses are undergraduate courses which provide opportunities beyond existing department courses. These courses enhance the undergraduate education for motivated students seeking more direct involvement with faculty in experiential practice. UNIV courses include experiences such as group tutor, peer facilitator/instructor, workshop guide, and undergraduate teaching assistant; learning experiences such as service-learning, fieldwork, co-op, apprenticeship, and internship; and research experience such as fieldwork and laboratory work. Students enroll under the supervision of faculty with permission. UNIV courses may not substitute major courses required in the department curriculum.

Further information: <http://www.ugs.udel.edu/gened/>.

## SERVICE LEARNING

Service-learning links students to the needs of the larger society. As one of the University of Delaware’s signature discovery learning opportunities, service-learning combines academic study with community service. Most service-learning experiences at the University of Delaware take place in courses whose students, as part of their coursework, provide service in a community agency and whose faculty direct the students’ reflection on these real-world experiences in light of academic theories and information being taught in the course.

Committed undergraduates may pursue individual service-learning projects through the Service-Learning Scholars program. Service-Learning Scholarships provide highly motivated students the opportunity to undertake full time independent projects over the summer. Scholars work with a community partner while simultaneously pursuing academic reading and reflection with a faculty mentor. Scholars receive a \$3,500 scholarship and serve full-time for ten weeks during the summer and continue to do three credits worth of work during the following academic year.

Further information: <http://www.servicelearning.udel.edu>.

UD’s Unique Undergraduate Research Opportunities  
Ronald E. McNair Post Baccalaureate Achievement Program

A research-based program designed especially for students seeking to place their research experience in the context of future graduate study, the Ronald E. McNair Post Baccalaureate Achievement Program promotes academic and personal excellence among undergraduate students interested in attaining a doctoral degree. Funded by the U.S. Department of Education, the McNair Program recruits talented, eligible undergraduates from all colleges at the University of Delaware. McNair Scholars are a community who value intellectual exchange and debate and the development of the life of the mind. Twenty-two McNair Scholars are funded each year.

Focusing on graduate school preparation, the McNair Program demystifies the graduate school application process and provides students with a simulated graduate school experience. The program offers a scholarly environment whereby

students receive academic, financial, and social support, as well as competitive stipends; one-on-one faculty mentoring; academic and financial aid advising; an intensive undergraduate summer research internship; graduate school preparation seminars; GRE preparation courses; research methodologies, statistics, and ethics course(s); a graduate school visitation program; cultural and social programs; a national McNair networking program; and graduate school application & GRE fee waivers.

Visit the program website at: <http://www.udel.edu/mcnair> or call (302) 831-4396 for a complete listing of eligibility requirements and a full overview of program services. University Undergraduate Scholars

The University Undergraduate Scholars Program aims to prepare talented students for graduate study through an intensive undergraduate research experience, academic enrichment, and a diverse living/learning community. University Undergraduate Scholars are eligible for a combination of services from the Undergraduate Research Program and the Ronald E. McNair Post Baccalaureate Achievement Program.

Five to ten University Undergraduate Scholars are funded each year to participate in a ten-week summer immersion undergraduate research experience with a faculty member in the field they hope to enter. These Scholars participate fully in McNair community-building experiences such as weekly group dinners, reading groups, and other social/cultural events. They meet the same obligations as the federally funded McNair Scholars, participate in McNair's full academic enrichment program, including participation in a graduate school seminar series, take part in graduate school visitations, present their research-in-progress at national McNair and/or Undergraduate Research conferences, and are given the opportunity to present their research in UD symposia and poster sessions. Scholars receive full individual advisement from McNair program staff, including advisement about graduate programs most appropriate to their interests and abilities, as well as individual review and critique of their graduate school application materials. Undergraduate Research Program

Delaware's unique Undergraduate Research Program encourages highly motivated undergraduates, beginning with the freshman level, to serve as junior members of research teams and work with faculty mentors. Through

hands-on experience, students learn to formulate significant questions, develop investigative procedures, gather and examine evidence, make mistakes, follow hunches, detect loopholes, and evaluate and report results.

Undergraduates usually receive academic credit for research activities; students who hold college work-study grants may earn their grant money. In the summer, a salary or stipend is often possible. Students explore career options through undergraduate research, and many make original contributions to knowledge in their chosen fields.

The University's Undergraduate Research Program assists undergraduates interested in research by serving as a central information and referral source. The Program also administers the Degree with Distinction and the senior thesis portion of the Honors Degree with Distinction requirements, and it offers research funding in the form of Undergraduate Research Grants (to defray the research expenses of students and their faculty sponsors) and Scholarships (to enable selected students to work on research full time during the summer).

Each year, the Undergraduate Research Program sponsors a spring symposium at which candidates for Distinction and Degree with Distinction students present their research findings. Science, Engineering and College of Education and Public Policy Scholars present several annual poster sessions, and McNair, UUS, Arts, Humanities, and Social Science Scholars present their work at annual research events.

For more information about the Undergraduate Research Program, visit <http://urp.udel.edu/> Science And Engineering Scholars  
The Science and Engineering Scholars Program combines the resources of the University's science and engineering colleges and research centers, the Undergraduate Research Program, and industrial sponsors to offer selected students in-depth research apprenticeships in all areas of science and engineering. Participating colleges are Engineering, Arts and Sciences, Agriculture and Natural Resources, Health Sciences, and Marine and Earth Studies.

Up to 80 research scholarships of \$3,500 each are awarded to outstanding sophomore majors in the sciences and engineering. Students serve a 10-week full-time research apprenticeship to

a faculty member during the summer between the sophomore and junior years. They continue as research assistants during the junior year, often in the Winter Session. Research during the academic year may be counted in most departments as one technical elective course or one elective course in the major.

**Life Science Scholars**

Funding undergraduate research in all areas of the life sciences, the Life Science Scholars Program annually provides about 20 summer stipends of \$3,500 each to students for the summer after their junior year. Outstanding first-year students may also apply. Each summer, the faculty directors of the University's Howard Hughes Medical Institute grant sponsor weekly enrichment seminars and a summer Undergraduate Research Symposium for all undergraduates conducting research in the sciences.

**Arts, Humanities And Social Science Scholars**

The Arts, Humanities and Social Science Scholars Program enables selected sophomore and junior majors in the humanities and social science disciplines and in art to do in-depth research or creative work with University faculty. Up to 45 research scholarships of \$3,500 each are awarded. Students work on their projects full-time for ten weeks in the summer and continue to do three credits of research in the following academic year. The research done during the academic year may be part of the senior thesis for the Degree with Distinction or Honors Degree with Distinction.

**College of Education and Public Policy Scholars**

The College of Education and Public Policy offers up to five \$3,500 awards to sophomore and junior majors in the College, enabling them to do in-depth research with faculty in the College. Students work on their projects full time for ten weeks in the summer and continue to do three credits of research in the following academic year. The research done during the academic year may be part of the senior thesis for the Degree with Distinction or Honors Degree with Distinction.

**Summer Undergraduate Research Fellowships**

About 35 fellowships of varying amounts provide partial support for undergraduate researchers in all fields who would like to devote a substantial amount of time to work on their projects during the summer. This fellowship is especially appropriate for students who wish to take a summer class and/or hold a job or internship for part of a summer in addition to doing research.

**Research Centers**

Students interested in research should be aware that the University serves as home to a number of specialized research units described in the "Research Centers, Institutes, and Special Facilities" section. Many of these units offer internship opportunities for undergraduate students.

### **Global Studies Opportunities**

If you're an undergraduate interested in adding an international element to your education, consider study abroad. No matter what your college or major, you can take advantage of semester, winter, or summer course offerings in a wide variety of disciplines and countries. The Institute for Global Studies (IGS) invites you to explore the world, enrich your academic experience, and enhance your understanding of other peoples, places, and ways of life.

Interested in spending a semester abroad? Fall semester locations include London, Salzburg, and Granada (Spain); spring semester locations include Mexico, London, and Granada. Semester programs are directed by an on-site coordinator, and courses are taught by local faculty. Except for foreign language courses and programs, courses are taught in English, and students earn regular UD academic credit applicable toward graduation and fulfilling academic requirements as specified.

Winter Session and Summer Session abroad expands UD's geographical reach every year, as more and more departments sponsor programs. University faculty direct the programs and teach regular credit courses. If you would like to study abroad, but for less than a semester, consider taking Winter or Summer Session courses abroad.

For the latest offerings throughout the year, please visit the Study Abroad web site at [www.udel.edu/studyabroad](http://www.udel.edu/studyabroad).

All study abroad participants enroll for a regular academic schedule and pay regular University tuition. Tuition and program fees usually cover airfare, housing for the duration of the program, planned group excursions, and many cultural activities. Some meals may be covered by the program fee, depending on the program. Study abroad merit- and need-based scholarships are available on a competitive basis.

IGS also offers a number of exchange programs with other institutions. The German-American Federation Scholarship program (for a year of study in Germany) and Denmark International Semester (DIS) are also available through the Institute for Global Studies.

If you would like guidance on which study abroad opportunity is right for you, call the Institute for Global Studies, (302) 831-2852 or visit the Institute in Elliott Hall.

(history), Phi Delta Kappa (education), Phi Sigma Tau (philosophy), Pi Delta Phi (French), Pi Mu Epsilon (mathematics), Pi Sigma Alpha (political science), Pi Tau Sigma (mechanical engineering), Psi Chi (psychology), Sigma Delta Pi (Spanish), Sigma Iota Rho (international relations), Sigma Tau Delta (English), Sigma Theta Tau (nursing), Sigma Xi (science) and Tau Beta Pi (engineering). Information may be obtained by calling the relevant academic department offices.

### **Societies Honor Our Best Students**

Phi Beta Kappa. Established in 1776, Phi Beta Kappa is the oldest honorary society on the American campus. A local chapter, Alpha of Delaware, was approved by the United Chapters of Phi Beta Kappa in September 1955 and was installed in April 1956. Generally, seniors majoring in the liberal arts and demonstrating superior scholarship are eligible for election.

Alpha Lambda Delta. Alpha Lambda Delta recognizes excellent scholarship in any academic field during the freshman year.

Phi Kappa Phi. Juniors and seniors ranking high in scholarship in any academic field are elected each year to this society. Two members of the faculty are also elected each year. Founded in 1897, Phi Kappa Phi is the national honor society that elects undergraduate and graduate students who have accomplished excellent scholarship in any academic field. The fifth chapter of the society was chartered at the University of Delaware in 1905. There are now over 285 chapters nationwide. For information, call the Undergraduate Research Program Office, (302) 831-3188.

Societies that recognize attainment in special academic fields are Alpha Kappa Delta (sociology), Alpha Mu Alpha (marketing), Alpha Zeta (agriculture), Beta Beta Beta (biology), Beta Gamma Sigma (business administration), Chi Epsilon (civil engineering), Delta Phi Alpha (German), Dobro Slovo (Slavic), Eta Kappa Nu (electrical engineering), FMA Honor Society (finance and banking), Gamma Kappa Alpha (Italian), Golden Key (no single field), Kappa Delta Pi (education), Kappa Omicron Nu (human resources), Lambda Pi Eta (communication), Mu Iota Sigma (management information systems), Omicron Delta Epsilon (economics), Order of Omega (Greek honorary), Phi Alpha Theta

# College of Agriculture and Natural Resources

## College of Agriculture and Natural Resources

In the College of Agriculture and Natural Resources, business, education, science and technology are used to solve problems related to environmental protection; food and fiber production; and animal and plant health. Comprising nearly 25% of the nation's workforce, agriculture and natural resources provide career opportunities in research, industry, education and government.

The curricula provide a flexible program of study designed to educate students on the rapid changes and improvements in agriculture and natural resources. Frequent consultation with faculty advisors helps students progress toward achieving their educational goals. College faculty encourage and support students to pursue Degrees with Distinction, to take courses in the University Honors Program, and to participate in the Science and Engineering Scholars summer research program.

Undergraduate majors are offered in agriculture and natural resources, agricultural education, animal and food sciences, engineering technology, entomology, environmental soil science, food and agribusiness marketing and management, food science, landscape horticulture and design, natural resource management, plant protection, plant science, preveterinary medicine and animal biosciences, resource economics, statistics, and wildlife conservation.

### Taking Courses Pass/Fail

Courses that a student chooses to take under the pass/fail option cannot be used to complete major or group requirements in the College of Agriculture and Natural Resources. Pass/fail option courses can be counted only as free electives.

### Dean's Scholar Program

The Dean's Scholar Program serves students whose clearly defined educational goals cannot be effectively achieved by pursuing the standard curricula for all existing majors, minors, and interdepartmental majors sponsored by the University. Driven by an overarching passion or curiosity that transcends typical

disciplinary bounds and curricula, a Dean's Scholar's intellectual interests may lead to broad interdisciplinary explorations of an issue or to more intense, in-depth studies in a single field at a level akin to graduate work. In consultation with faculty advisors and the Assistant Dean of their college, Dean's Scholars design an imaginative and rigorous individual plan of study to meet the total credit hours required for graduation. Dean's Scholars in Agriculture and Natural Resources may qualify for Honors Degrees. Contact the Assistant Dean in the college or go to [www.udel.edu/deansscholar/](http://www.udel.edu/deansscholar/) for more information and the application.

### Bachelor of Science Core Curriculum

For all majors except Engineering Technology, the following core curriculum must be met in addition to the Major and Concentration requirements listed in the catalog. Exceptions or additions to the core curriculum for a specific major are noted in the department sections. Students should consult with their advisor(s) as to whether a course can count for multiple requirements (major, college, university). If a course is used to fulfill two or more requirements, credits are counted only once toward the total credits for graduation.

### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing (minimum grade of C-)	3
First Year Experience (FYE)	0-1
Breadth Requirements	12
Discovery Learning Experience (DLE)	3

Multi-cultural Course 3

### COLLEGE BREADTH REQUIREMENTS

Agricultural and Natural Resources 9  
A minimum of nine credits from any three different subject area codes, outside the subject area codes of the student's major, offered by the Departments in the College of Agriculture and Natural Resources. The exceptions would be any course that states in the course description that it cannot be used to satisfy the College breadth requirements, special problems, research, internships, first year experience, seminars and similar courses.

Physical Science 8  
Minimum of 8 credits from CHEM, GEOL, PHYS,  
or SCEN. See major for specific requirement.

### **Agriculture And Natural Resources (BS)**

Telephone: (302) 831-2508  
E-mail: [latoya@udel.edu](mailto:latoya@udel.edu)  
<http://ag.udel.edu>

For the undergraduate with broad interests, the major in agriculture and natural resources is offered. The program is administered through the Office of the Academic Programs and Student Services in the College of Agriculture and Natural Resources in 104 Townsend Hall.

#### **CURRICULUM CREDITS**

See University and College Requirements

#### **MAJOR REQUIREMENTS**

Mathematics and Computer Science  
Mathematics course (MATH 115 or higher) 3  
Computer Science course (FREC 135 or  
equivalent) 3

Physical Sciences 8  
Minimum of eight credits selected from one of  
the following two-course sequences:  
CHEM 101/CHEM 102 or CHEM 103/CHEM 104  
PHYS 201/PHYS 202 or PHYS 207/PHYS 208  
SCEN 101/SCEN 102

Communications (cannot be double counted to  
fulfill another requirement)

A minimum of one course in written  
communications chosen  
from the following: 3  
ENGL 301 Expository Writing  
ENGL 302 Advanced Composition  
ENGL 312 Written Communications in Business  
ENGL 410 Technical Writing

A minimum of one course in oral  
communications chosen  
from the following: 3  
AGRI 212 Oral Communication in Agriculture and  
Natural Resources  
COMM 212 Oral Communication in Business  
COMM 255 Fundamentals of Communication  
COMM 350 Public Speaking

Within the college 30  
Thirty additional credits from any of the  
following areas (fifteen credits of the 30 must be  
at the 300 level or higher).

Food and Resource Economics, Bioresources  
Engineering, Agricultural Education, Animal and  
Food Sciences, Entomology and Wildlife Ecology,  
Statistics, Agriculture, or Plant and Soil Sciences.  
(A maximum of twelve credits of Special  
Problem/Independent Study/Field Experience  
may be counted toward the degree, with a  
maximum of six credits in any one area.)

#### **ELECTIVES**

After required courses are completed, sufficient  
credits must be taken to meet the minimum  
credits required for the degree. Only four credits  
total of HESC 120 activity or performing Music  
credit may be counted toward the degree.

CREDITS TO TOTAL A MINIMUM OF 124

### **Animal and Food Sciences (BS)**

Telephone: (302) 831-2524  
<http://ag.udel.edu>  
Faculty Listing: [http://ag.udel.edu/anfs/faculty/  
facultyStaff.htm](http://ag.udel.edu/anfs/faculty/facultyStaff.htm)

The Department of Animal and Food Sciences  
offers undergraduate programs leading to the  
Bachelor of Science degrees in: 1) Animal and  
Food Sciences, 2) Pre-Veterinary Medicine and  
Animal Biosciences and 3) Food Science. The  
department also offers minor programs in a)  
Animal Science and b) Food Science. An Honors  
Degree option is offered for all majors in the  
department.

The Animal and Food Sciences major  
encompasses a wide range of disciplines in  
which the principles of biology, chemistry and  
biochemistry are applied to animal agriculture  
and food systems. Instruction is offered in  
animal nutrition, food safety, food science and its  
interactions with animal agriculture, physiology,  
genetics, and reproduction; in animal health and  
molecular biology; and in dairy, livestock and  
poultry management.

The Pre-Veterinary and Animal Biosciences major  
is designed to meet not only the department,  
college, and University requirements for the BS  
degree, but also the admission requirements for  
many veterinary schools. It is also designed to  
prepare students to pursue graduate degrees in  
areas related to animal agriculture and biological  
sciences through course work and laboratory  
experiences.

The Food Science major is designed to provide students with a broad understanding and professional preparation in the areas of food processing, preservation, evaluation, packaging, and distribution. Upon graduation, job opportunities include positions within the food and allied industries, government, and independent research institutions. The role of the food scientist in such positions may involve product and process development, food safety engineering, quality control and analysis, technical service and sales, with opportunities in regulatory agencies, education, and basic research. This major places emphasis on the biological, chemical and physical sciences, preparing a student for research opportunities within the Food Science disciplines. Additional recommended electives can provide a student with the course work to pursue a food processing engineering emphasis.

Students are encouraged to participate in a broad realm of animal and food science projects in the department through undergraduate research opportunities.

#### CURRICULUM CREDITS

See University and College Requirements

#### Math and Science Requirements

MATH 221	Calculus I	3
BISC 207/BISC 208	Introductory Biology I and II	8
CHEM 101/CHEM 102 or CHEM 103/CHEM 104	General Chemistry I and II	8
CHEM 213/CHEM 215	Elementary Organic Chemistry w/lab	4
CHEM 214/CHEM 216	Elementary Biochemistry w/lab	4

#### MAJOR REQUIREMENTS

A minimum grade of C- is required for all ANFS credits used to satisfy the major requirements.

ANFS 101	Introduction to Animal Science	3
ANFS 102	Food for Thought	3
ANFS 111	Animal and Food Science Laboratory	1
ANFS 140	Functional Anatomy	4
ANFS 230	Foodborne Diseases (or ANFS 332 Animal Diseases)	3
ANFS 251	Animal Nutrition	3
ANFS 252	Animal Nutrition Laboratory	1
ANFS 265	Career Development	1

ANFS 300	Principles of Animal and Plant Genetics	3
ANFS 305	Food Science	3

One of the following 3-credit physiology courses:

ANFS 441	Reproductive Physiology of Domestic Animals	
ANFS 442	Lactational Physiology	
BISC 306	General Physiology	

One of the following 4-credit capstone/DLE courses :

ANFS 404	Dairy Production	4
ANFS 411	Food Science Capstone	
ANFS 417	Beef Cattle and Sheep Production	
ANFS 418	Swine Production	
ANFS 421	Poultry Production	
ANFS 420	Equine Management	

A minimum of 6 credits from the following, to include at least two courses

ANFS 409	Food Processing	3
ANFS 419	Topics in International Animal Agriculture	3-4
ANFS 424	Nonruminant Nutrition	3
ANFS 435	Animal Virology	3
ANFS 436	Immunology of Domestic Animals	3
ANFS 439	Food Microbiology	3
ANFS 441	Reproductive Physiology of Domestic Animals	3
ANFS 442	Lactational Physiology	3
ANFS 445	Comparative Physiology of Domestic Animals	3
ANFS 449	Food Biotechnology	4
ANFS 454	Ruminant Nutrition	3
ANFS 366/ANFS 466	Independent Study (max)	3
ANFS 468	Research	3 (max)
ANFS 470	Principles of Molecular Genetics	3

Second writing requirement (with a minimum grade of C-) 3\*\*

A second writing course involving significant writing experience. The course must be taken after completion of 60 credit hours. Approved courses are designated each semester. (\*\*These credits can be used to satisfy credit requirements in the breadth requirements for Literature and Arts)

#### ELECTIVES

Variable to complete a total of 124 credits  
After required courses are completed, sufficient credits must be taken to meet the minimum

requirements for the degree. Only 4 credits of HESC 120 or 4 credits of performing Music credit may be counted toward the degree. ANFS 399 may be taken P/F for a maximum of 2 credits toward the degree. No more than 5 credits of ANFS X66 may be counted towards the major.

Students should consult with their advisor regarding the choice of elective credits. Students wishing to concentrate their efforts in the areas of Production Systems, Equine and Companion Animals, Food Safety, or Biotechnology are strongly encouraged to consider the recommended course selections provided by the department.

CREDITS TO TOTAL A MINIMUM OF 124

**PRE-VETERINARY MEDICINE AND ANIMAL BIOSCIENCES (BS)**

**CURRICULUM CREDITS**

See University and College Requirements

**Math Science Requirements**

BISC 207/BISC 208	Introductory Biology I and II	8
BISC 300	Introduction to Microbiology	4
CHEM 103/CHEM 104	General Chemistry	8
CHEM 321/CHEM 322	Organic Chemistry	8
CHEM 527	Biochemistry (or CHEM 214)	3
PHYS 201/PHYS 202	General Physics I and II	8
MATH 221	Calculus I	3
FREC 408	Research Methods (or STAT 200)	3

**MAJOR REQUIREMENTS**

A minimum grade of C- is required for all ANFS credits used to satisfy the major requirements

ANFS 101	Introduction to Animal Science	3
ANFS 102	Food for Thought	3
ANFS 111	Animal and Food Science Laboratory	1
ANFS 140	Functional Anatomy	4
ANFS 251	Animal Nutrition	3
ANFS 252	Animal Nutrition Laboratory	1
ANFS 265	Career Development	1
ANFS 300	Principles of Animal and Plant Genetics	3
ANFS 310	Animal Genetics Laboratory	1
ANFS 332	Introduction to Animal Diseases	3
ANFS 445	Comparative Physiology of	

	Domestic Animals	3
ANFS XXX	Animal Science elective	3

One of the following capstone/DLE courses: 4

ANFS 404	Dairy Production
ANFS 411	Food Science Capstone
ANFS 417	Beef Cattle and Sheep Production
ANFS 418	Swine Production
ANFS 420	Equine Management
ANFS 421	Poultry Production

Second Writing Requirement (with a minimum grade of C-) 3\*\*

A second writing course involving significant writing experience. The course must be taken after completion of 60 credit hours. Approved courses are designated each semester. (\*\*These credits can be used to satisfy credit requirements in the breadth requirements for Literature and Arts)

**ELECTIVES**

After required courses are completed, sufficient credits must be taken to meet the minimum requirements for the degree. Only 4 credits of HESC 120 or 4 credits of performing Music credit may be counted toward the degree. ANFS 399 may be taken P/F for a maximum of 2 credits toward the degree. No more than 5 credits of ANFS X66 may be counted towards the major.

**Recommended Electives:**

ANFS 436	Immunology of Domestic Animals
ANFS 261	Principles of Companion Animal Nutrition
ANFS 424	Nonruminant Nutrition
ANFS 435	Introduction to Animal Virology
ANFS 442	Lactational Physiology
ANFS 454	Ruminant Nutrition
COMM 212 or AGRI 212	Oral Communication
ENWC 419	Medical Veterinary Entomology
ENGL 312	Written Communications in Business
FREC 201	Records and Accounts

CREDITS TO TOTAL A MINIMUM OF 124

## Honors- Animal and Food Sciences or Pre-Veterinary Medicine and Animal Biosciences (BS)

The recipient of this degree must complete:

1. All requirements for the Bachelor of Science: Animal and Food Sciences or Pre-Veterinary Medicine and Animal Biosciences
2. All the University requirements for the Honors degree. Courses with the ANFS prefix taken at the 600-level or higher are considered to be Honors courses in the major. One 3-or 4-credit course in PLSC, ENWC, or BISC will, if taken as Honors, count toward the 12 Honors credits required in the major or in related disciplines.

### MINOR IN ANIMAL SCIENCE

Minor in Animal Science

A minimum grade of C- is required for all ANFS credits used to satisfy the minor requirements

The minor in animal science requires 19 credits in animal science including: ANFS 101, ANFS 111, ANFS 140, ANFS 251, ANFS 252, one course from ANFS 404, ANFS 417, ANFS 418, ANFS 420 and ANFS 421; and one course from ANFS 332, ANFS 441, ANFS 442, ANFS 436 and ANFS 454.

DEGREE: BACHELOR OF SCIENCE  
MAJOR: FOOD SCIENCE

CURRICULUM CREDITS  
See University and College Requirements

Math Science Requirements		
BISC 207/BISC 208	Introductory Biology I and II	8
BISC 300	Introduction to Microbiology	4
CHEM 103/CHEM 104	General Chemistry	8
CHEM 220	Quantitative Analysis I	3
CHEM 221	Quantitative Analysis Laboratory	1
CHEM 321/CHEM 322	Organic Chemistry	8
CHEM 214	Elementary Biochemistry	3
CHEM 418	Introductory Physical Chemistry	3
PHYS 201/PHYS 202	General Physics I and II	8
MATH 221/MATH 222	Calculus I and II	6
NTDT 200	Nutrition Concepts	3
FREC 408	Research Methods (or STAT 200)	3

MAJOR REQUIREMENTS  
A minimum grade of C- is required for all ANFS

credits used to satisfy the major requirements.

ANFS 102	Food for Thought	3
ANFS 111	Animal and Food Science Laboratory	1
ANFS 159	Topics in Food Science	1
ANFS 230	Foodborne Diseases	3
ANFS 305	Food Science	3
ANFS 428	Food Chemistry	4
ANFS 429	Food Analysis	4
ANFS 409	Food Processing	4
ANFS 411	Food Science Capstone (DLE)	4
ANFS 439	Food Microbiology	4
ANFS 443	Food Engineering	4
ANFS 449	Food Biotechnology	4

Second Writing Requirement (with a minimum grade of C-) 3\*\*

A second writing course involving significant writing experience. The course must be taken after completion of 60 credit hours. Approved courses are designated each semester. (\*\*These credits can be used to satisfy credit requirements in the breadth requirements for Literature and Arts)

ELECTIVES - Variable to complete a total of 124 credits

After required courses are completed, sufficient credits must be taken to meet the minimum credits requirements for the degree. Only 4 credits of HESC 120 or four credits of performing Music credits may be counted toward the degree. ANFS 399 may be taken P/F for a maximum of 2 credits toward the degree. No more than 5 credits of ANFS X66 may be counted towards the major.

Students should seek advice from their academic advisors when choosing electives.

CREDITS TO TOTAL A MINIMUM OF 124

### HONORS - FOOD SCIENCE(BS)

The recipient of this degree must complete:

1. All requirements for the Bachelor of Science: Food Science.
2. All the University requirements for the Honors degree. Courses in Food Science taken at the 600-level or higher are considered to be Honors courses in the major. One 3-or 4-credit required course in a related technical area will, if taken as Honors, count toward the total of Honors credits required in the major or in related disciplines.

## MINOR IN FOOD SCIENCE

The minor in food science requires 15 credits, and a C- grade or higher is required in all ANFS courses. Course selection depends on completion of prerequisites and other science and math preparation. Successful completion of MATH 221/MATH 222 Calculus I and II (6 credits) is required prior to taking food science courses for the minor; however, pre-requisites may be waived with permission of instructor.

ANFS 305      Food Science    3

Select any 3 courses from:    12

ANFS 428      Food Chemistry  
ANFS 429      Food Analysis  
ANFS 409      Food Processing  
ANFS 411      Food Science Capstone  
ANFS 443      Food Engineering  
ANFS 449      Food Biotechnology  
ANFS 639      Food Microbiology

Prerequisites may be waived. Permission of instructor to register is based on individual student academic record and major. See a food science faculty member for advisement.

CREDITS TO TOTAL A MINIMUM OF    15

## Bioresources Engineering

Telephone: (302)831-2468

<http://ag.udel.edu>

Faculty Listing: <http://ag.udel.edu/breg/faculty/facultyStaff.htm>

The Bioresources Engineering Department offers an undergraduate major in Engineering Technology that is accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (TAC of ABET).

## ENGINEERING TECHNOLOGY

Engineering technology is part of the broad discipline of engineering, in which knowledge of the mathematical and natural sciences is applied in utilization of materials and forces. Engineering technology requires the application of scientific and engineering knowledge combined with technical skills in support of engineering activities. The curriculum prepares the engineering technologist to make independent judgments and to design and manage systems

and components to achieve conceptual goals with consideration of their effectiveness, safety and cost. Close liaison is maintained between the educational programs and employers to give graduates the greatest opportunity for career development.

Within the major in engineering technology, two optional concentrations are available. The natural resources engineering technology concentration includes course work in storm-water management, wastewater treatment systems, water supply and non-point source pollution. The construction technology and technical management concentration provides courses in soil mechanics, storm-water management, wood and steel and concrete and masonry as well as courses in project management and economic analysis. Both concentrations allow the student to focus their studies with more in-depth courses in areas of their interest.

Students who choose the engineering technology major may take all the necessary courses at the University of Delaware or they may transfer appropriate course work from other accredited institutions. Students who wish to have prior course work considered must contact an advisor in the department for a degree analysis.

Computer use for problem solving is important throughout the engineering technology curriculum. Students are urged to have their own computer with spreadsheet and word processing software, and should be able to connect to the University computer network.

## ENGINEERING TECHNOLOGY (BS)

### CURRICULUM CREDITS

#### UNIVERSITY REQUIREMENTS

ENGL 110      Critical Reading and Writing    3  
First Year Experience (FYE)    0-4  
Breadth Requirements            12  
Discovery Learning Experience (DLE) 3

#### Multi-cultural Courses 3

Three credits in an approved course or courses stressing multi-cultural, ethnic, and/or gender-related course content

## MAJOR REQUIREMENTS

### Professional Development

BREG 165	Engineering Technology Freshman Seminar I (FYE)	0
BREG 175	Engineering Technology Freshman Seminar II	1
BREG 265	Engineering Technology Sophomore Seminar	1
BREG 365	Engineering Technology Junior Seminar	1
BREG 465	Engineering Technology Senior Seminar & Capstone Experience	1

### Communications

A second writing course selected from those listed as satisfying the College of Arts & Sciences second writing requirement. 3

An oral communications course selected from:

COMM 212	Oral Communication in Business
COMM 350	Public Speaking

### Additional Breadth Requirements

ECON 151	Introduction to Microeconomics	3
ECON 152	Introduction to Macroeconomics	3

Six additional credits from two different categories to be selected from university breadth groups: Creative Arts and Humanities or History and Cultural Change. May include Multicultural Course. 6

### Basic Sciences and Mathematics

	Biology/Life Science course	3 or 4
CHEM 103	General Chemistry	4
PHYS 207/PHYS 208	Fundamentals of Physics I and II (recommended)	

or

PHYS 201/PHYS 202	Introductory Physics I and II	8
MATH 241	Calculus A (Students not qualifying for placement in MATH 241 may be required to take MATH 117 first)	4
MATH 242	Calculus B	4
or		
MATH 222	Calculus II (with permission of advisor)	3

Additional MATH course to bring total MATH credits at 201 level and above to 12 credits 4 or 5

### Technical Skills

BREG 209	Technical and Computer Aided Drafting	3
CISC 106	General Computer Science for Engineers	3
Technical Skills Electives		6

### Technical Sciences

BREG 215	Applied Fluid Mechanics	4
BREG 231	Fundamentals of Statics and Strength of Materials	4
BREG 232	Dynamics for Engineering Technology	3
BREG 244	Electricity for Engineering Technology	4
BREG 311	Fundamentals of Thermodynamics	3

### Technical Specialization

BREG 450	Technical Practicum in Industry	
or		
BREG 468	Undergraduate Research (DLE)	3

Technical Specialization Electives 24 to 30  
24 to 30 credits of BREG or engineering courses at the 300-level or above from a department approved list. May include maximum of one course from BREG 306, 416, 417, and 420. A maximum of 6 credits from BREG 450 and BREG 468 may be counted in technical specialization. With a science, technical, or business minor or an ET Associate's degree, the requirements for Technical Specialization electives are reduced from 30 credits to a minimum of 24

### Technical Support 9 to 15

9 to 15 credits of course work selected to support the student's career objectives. Increase to 15 credits if Technical Specialization elective credits are reduced to 24 by virtue of a science, technical, or business minor or an ET Associate's degree. Subject to the approval of the faculty.

### CREDITS TO TOTAL A MINIMUM OF 124

Students must earn at least a C- in all prerequisite courses to qualify for admission to the next course. Enrollment in BREG 300 and 400 level courses is limited to majors with Junior or Senior standing, or by permission of the instructor. To graduate with a major in engineering technology, a student must attain at least a 2.0 average in BREG courses. This requirement is in addition to the University requirement of an overall 2.0 grade point average.

## ENGINEERING TECHNOLOGY (NATURAL RESOURCES ENGINEERING TECHNOLOGY) (BS)

CONCENTRATION: Natural Resources Engineering Technology (NRET)

### CURRICULUM CREDITS

#### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing 3

First Year Experience (FYE) 1  
Breadth Requirements 12  
Discovery Learning Experience (DLE) 3  
Multi-cultural courses 3  
Three credits in an approved course or courses stressing multi-cultural, ethnic, and/or gender-related course content

#### MAJOR REQUIREMENTS

##### Professional Development

BREG 165 Engineering Technology Freshman Seminar I (FYE) 0  
BREG 175 Engineering Technology Freshman Seminar II 1  
BREG 265 Engineering Technology Sophomore Seminar 1  
BREG 365 Engineering Technology Junior Seminar 1  
BREG 465 Engineering Technology Senior Seminar & Capstone Experience 1

##### Communications

A second writing course selected from those listed as satisfying the College of Arts & Sciences second writing requirement. 3

An oral communications course selected from:  
3

COMM 212 Oral Communication in Business  
COMM 350 Public Speaking

##### Additional Breadth Requirements

ECON 151 Introduction to Microeconomics 3  
ECON 152 Introduction to Macroeconomics 3

Six additional credits from two different categories to be selected from university breadth groups: Creative Arts and Humanities or History and Cultural Change. May include Multicultural Course. 6

##### Basic Sciences and Mathematics

Biology/Life Science course 3 or 4  
CHEM 103 General Chemistry 4  
PHYS 207/PHYS 208 Fundamentals of Physics I and II (recommended)

or

PHYS 201/PHYS 202 Introductory Physics I and II 8

MATH 241 Calculus A (Students not qualifying for placement in MATH 241 may be required to take MATH 117 first) 4

MATH 242 Calculus B 4

or

MATH 222 Calculus II (with permission of advisor) 3

Additional MATH course to bring total MATH credits at 201 level and above to 12 credits 4 or 5

##### Technical Skills

BREG 113 Introduction to Surveying 3  
BREG 209 Technical and Computer Aided Drafting 3  
BREG 223 Surveying 3  
CISC 106 General Computer Science for Engineers 3

##### Technical Sciences

BREG 215 Applied Fluid Mechanics 4  
BREG 231 Fundamentals of Statics and Strength of Materials 4  
BREG 232 Dynamics for Engineering Technology 3  
BREG 244 Electricity for Engineering Technology 4  
BREG 311 Fundamentals of Thermodynamics 3

##### Technical Specialization

BREG 321 Storm Water Management 4  
BREG 328 Wastewater Treatment Systems 3  
BREG 421 Nonpoint Source Pollution 3  
BREG 423 Advanced Stormwater Management 3  
BREG 424 Water Supply and Water Treatment Systems 3  
BREG 450 Technical Practicum in Industry  
or  
BREG 468 Undergraduate Research (DLE) 3

Technical Specialization electives 8 to 14  
8 to 14 credits of BREG or engineering courses

at the 300-level or above from a department approved list. May include maximum of one course from BREG 306, 416, 417, and 420. A maximum of 6 credits from BREG 450 and BREG/UNIV 468 may be counted in technical specialization. With a science, technical, or business minor or an ET Associate's degree, the requirements for Technical Specialization electives are reduced from 14 credits to a minimum of 8.

Technical Support 9 to 15  
 Technical Support electives - 9 to 15 credits selected to support the student's career interest. Requirement is 9 credits if Technical Specialization elective credits are reduced to 8 by virtue of a science, technical, or business minor or an ET Associate's degree. Subject to the approval of the faculty.

CREDITS TO TOTAL A MINIMUM OF 124

Students must earn at least a C- in all prerequisite courses to qualify for admission to the next course. Enrollment in BREG 300 and 400 level courses is limited to majors with Junior or Senior standing, or by permission of the instructor. To graduate with a major in engineering technology, a student must attain at least a 2.0 average in BREG courses. This requirement is in addition to the University requirement of an overall 2.0 grade point average.

**ENGINEERING TECHNOLOGY (CONSTRUCTION TECHNOLOGY AND TECHNICAL MANAGEMENT) (BS)**

**CURRICULUM CREDITS**

**UNIVERSITY REQUIREMENTS**

ENGL 110 Critical Reading and Writing 3  
 First Year Experience (FYE) 0-4  
 Breadth Requirements 12  
 Discovery Learning Experience (DLE) 3

Multi-cultural Courses 3  
 Three credits in an approved course or courses stressing multi-cultural, ethnic, and/or gender-related course content.

**MAJOR REQUIREMENTS**

Professional Development  
 BREG 165 Engineering Technology  
 Freshman Seminar I (FYE) 0

BREG 175 Engineering Technology  
 Freshman Seminar II 1  
 BREG 265 Engineering Technology  
 Sophomore Seminar 1  
 BREG 365 Engineering Technology Junior  
 Seminar 1  
 BREG 465 Engineering Technology Senior  
 Seminar & Capstone  
 Experience 1

**Communications**

A second writing course selected from those listed as satisfying the College of Arts & Sciences second writing requirement. 3

An oral communications course selected from:

COMM 212 Oral Communication in Business  
 COMM 350 Public Speaking

**Additional Breadth Requirements**

ECON 151 Introduction to  
 Microeconomics 3  
 ECON 152 Introduction to  
 Macroeconomics 3

Six additional credits from two different categories to be selected from university breadth groups: Creative Arts and Humanities or History and Cultural Change. May include Multicultural Course. 6

**Basic Sciences and Mathematics**

Biology/Life Science course 3 or 4  
 CHEM 103 General Chemistry 4  
 PHYS 207/PHYS 208 Fundamentals of Physics I  
 and II (recommended)

or

PHYS 201/PHYS 202 Introductory Physics I  
 and II 8

MATH 241 Calculus A (Students not  
 qualifying for placement in MATH  
 241 may be required to take  
 MATH 117 first) 4

MATH 242 Calculus B 4

or

MATH 222 Calculus II (with permission of  
 advisor) 3

Additional MATH course to bring total MATH  
 credits at 201 level and above to 12 credits 4  
 or 5

**Technical Skills**

BREG 113 Introduction to Surveying 3  
 BREG 209 Technical and Computer-Aided  
 Drafting 3  
 BREG 223 Surveying 3

CISC 106 General Computer Science for Engineers 3

#### Technical Sciences

BREG 215 Applied Fluid Mechanics 4

BREG 231 Fundamentals of Statics and Strength of Materials 4

BREG 232 Dynamics for Engineering Technology 3

BREG 244 Electricity for Engineering Technology 4

BREG 311 Fundamentals of Thermodynamics 3

#### Technical Specialization

BREG 312 Fundamentals of Soil Mechanics 3

BREG 321 Storm Water Management 4

BREG 416 Project Economic Analysis 3

BREG 454 Wood and Steel Structures 3

BREG 455 Concrete and Masonry Structures 3

BREG 450 Technical Practicum in Industry or

BREG 468 Undergraduate Research (DLE) 3

Technical Specialization Electives 14 to 8  
8 to 14 credits of BREG or engineering courses at the 300-level or above from a department approved list. May include maximum of one course from BREG 306, 416, 417, and 420. A maximum of 6 credits from BREG 450 and BREG/UNIV 468 may be counted in Technical Specialization. With a science, technical, or business minor or an ET Associate's degree, the requirements for Technical Specialization electives are reduced from 14 credits to a minimum of 8.

#### Technical Support

BREG 306 Cost Estimating 3

BREG 417 Project Management 3

Technical Support Electives 3 to 9

3 to 9 credits of course work selected to support the student's career interest. Requirement is 9 credits if Technical Specialization elective credits are reduced to 8 by virtue of a science, technical, or business minor or an ET Associate's degree. Subject to the approval of the faculty.

CREDITS TO TOTAL A MINIMUM OF 124

Students must earn at least a C- in all prerequisite courses to qualify for admission to the next course. Enrollment in BREG 300 and 400 level courses is limited to majors with

Junior or Senior standing, or by permission of the instructor. To graduate with a major in engineering technology, a student must attain at least a 2.0 average in BREG courses. This requirement is in addition to the University requirement of an overall 2.0 grade point average.

#### MINOR IN ENGINEERING TECHNOLOGY

A minor in engineering technology may be earned by a student in any University bachelor degree program through successful completion of a minimum of 20 credits in engineering technology courses in accordance with the requirements listed here. Before taking each engineering technology course, the student must satisfy required prerequisites for the course. A grade point average of at least 2.0 is required in the 20 credits of engineering technology courses for the minor.

The required engineering technology courses are:

BREG 209 Technical and Computer Aided Drafting 3

One course from the following list:

BREG 215 Applied Fluid Mechanics 4

BREG 231 Fundamentals of Statics and Strength of Materials 4

BREG 244 Electricity for Engineering Technology 4

Furthermore, additional courses must be completed so that BREG credits total 20, of which at least 6 credits must be at the 300-level or above. All engineering technology courses shall be selected with the approval of an advisor in the Department of Bioresources Engineering to meet each student's objectives. For students interested in natural resources and environmental issues, courses could include: BREG 103, BREG 113, BREG 215, BREG 223, BREG 321, BREG 328, BREG 421, and BREG 423. For students interested in construction technology, courses could include: BREG 113, BREG 215, BREG 223, BREG 231, BREG 312, BREG 321, BREG 416, BREG 417, BREG 420, BREG 454, BREG 455 and BREG 456. Courses can also be chosen to give the student's minor an emphasis in other areas such as manufacturing or management.

## Entomology and Wildlife Ecology

Telephone: (302) 831-2526

E-mail: [jlbowman@udel.edu](mailto:jlbowman@udel.edu)

<http://ag.udel.edu>

Faculty Listing: <http://ag.udel.edu/enwc/faculty/facultyStaff.htm>

Entomology emphasizes the structure, physiology, behavior, development, ecology, classification, and management of insects. Wildlife ecology broadly includes the biology and ecology of all species and their conservation. Wildlife conservation is the broad effort to perpetuate free-living, breeding populations of species in their native habitats. The department views all non-domesticated species as wildlife.

The Department offers two undergraduate majors. Students can focus their biological interest on insects in the Entomology major. This program requires basic sciences as well as specialty courses on insects. Flexibility in course selection permits students to emphasize pest management or insect biology. The Wildlife Conservation major is for students with interests in the biological aspects of environmental science, e.g., conservation, wildlife biology, or ecology. It requires basic sciences, specialty courses in vertebrates, insects, plants, and conservation and other supporting areas. The curriculum's flexibility accommodates career goals ranging from research to nature education, conservation advocacy and wildlife management. Meeting the requirements for the Wildlife Conservation major should provide the student with the minimum educational requirements for certification as an Associate Wildlife Biologist by The Wildlife Society, a professional society. An Honors Degree option is offered for both majors. The department also offers minors in both Entomology and Wildlife Conservation and co-offers Natural Resource Management and Plant Protection as interdisciplinary majors.

The faculty advisor and student jointly plan the course program according to the student's interests and career objective. Course selection should be made in consultation with the academic advisor during the registration period of each term.

University of Delaware students in other majors who wish to transfer to or add entomology or wildlife conservation majors must have a UD grade point average of at least 2.25. In addition,

completion of the major must be the stated intention of the student and a realistic possibility before the student's intended graduation date. Students with a GPA below 2.25 are invited to contact the department for advisement on course selection appropriate to the desired major while improving their GPA.

## ENTOMOLOGY (BS)

### CURRICULUM CREDITS

See University and College requirements.

### MAJOR REQUIREMENTS

A minimum grade of C- is required for all ENWC credits used to satisfy departmental requirements.

#### Professional Studies

FREC 135	Intro to Data Analysis	3
	(or equivalent)	
MATH 115	Pre-Calculus or higher level	3
BISC 207	Introductory Biology I	4
BISC 208	Introductory Biology II	4
BISC 302	General Ecology	3
CHEM 101/CHEM 102		
or		
CHEM 103/CHEM 104	General Chemistry	8
ENWC 165	New Student Seminar	1
ENWC 205	Elements of Entomology	3
ENWC 215	Entomology Laboratory	1
ENWC 300	Principles of Animal and Plant Genetics	3
ENWC 405	Insect Structure and Function	4
ENWC 406	Insect Identification-Taxonomy	3
ENWC 408	Field Taxonomy	3
ENWC 465	Senior Capstone Experience	1

ENWC courses 6  
(may include 3 credits maximum of Independent Study, Research, and must include one regularly scheduled course with content focused on insects; Field Experience.)

Nine credits from any of the following: 9  
Any BISC XXX course or courses at or above 300-level  
(except BISC 302 and BISC 321)

PLSC 151	Introduction to Crop Science
PLSC 201	Botany II
PLSC 204	Introduction to Soil Science
PLSC 211	Herbaceous Landscape Plants
PLSC 212	Woody Landscape Plants
PLSC 303	Introductory Plant Pathology

PLSC 404 Plant Taxonomy

### ELECTIVES

Beyond required courses, sufficient credits must be taken to meet the minimum credits required for the degree. Organic chemistry, biochemistry, statistics, physics, and additional writing courses are strongly recommended. Only two credits of HESC activity or performing music may be counted toward the degree.

CREDITS TO TOTAL A MINIMUM OF 124

### WILDLIFE CONSERVATION (BS)

#### CURRICULUM CREDITS

See University and College requirements.

#### MAJOR REQUIREMENTS

A minimum grade of C- is required for all ENWC credits used to satisfy departmental requirements.

#### Professional Studies

FREC 135 (or equivalent) Intro to Data Analysis 3

MATH 115, MATH 221, or MATH 241 3-4

BISC 207/BISC 208 Introductory Biology I and II 8

BISC 302 General Ecology 3

CHEM 101/CHEM 102 General Chemistry or

CHEM 103/CHEM 104 General Chemistry 8

ENWC 165 New Student Seminar 1

ENWC 201 Wildlife Conservation and Ecology 3

ENWC 205 Elements of Entomology 3

ENWC 300 Principles of Animal and Plant Genetics 3

or

BISC 403 Genetics and Evolutionary Biology 3

ENWC 325 Wildlife Management 3

ENWC 406 Insect Identification-- Taxonomy 3

ENWC 415 Wildlife Research Techniques 3

ENWC 418 Ornithology 3

ENWC 425 Mammalogy 3

ENWC 465 Senior Capstone Experience 1

ENWC credit (may include UNIV 400 or any ENWC course 200-level

or above (except X66 and x68) 3

ECON 151 Introduction to Microeconomics: Prices and Markets 3

or

FREC 150 Economics of Agriculture and

Natural Resources 3  
Research Methods I 3

FREC 408

or

STAT 200 Basic Statistical Practice 3

PLSC 101 Botany I 4

PLSC 204 Introduction to Soil Science 3

PLSC 212 Woody Landscape Plants 4

or

PLSC 214 Indigenous Woody Plants of

Eastern United States 2

or

PLSC 404 Plant Taxonomy 3

GROUP I: 10 credits from the following 10

ANSC 140 Functional Anatomy of Domestic Animals

BISC 300 Introduction to Microbiology

BISC 305 Cell Physiology

BISC 306 General Physiology

BISC 442 Vertebrate Morphology

BISC 480 Vertebrate Natural History

BISC 495 Evolution

BISC 637 Population Ecology

ENWC 310 Animal and Plant Genetics Laboratory

ENWC 408 Insect Field Taxonomy

ENWC 424 Herpetology

ENWC 444 Conservation of Tropical Biodiversity

ENWC 452 Conservation of African Wildlife

MAST 627 Marine Biology

MAST 629 Ichthyology

GROUP II: 9 credits from the following 9

AGRI 212 Oral Communication in Agriculture and Natural Resources

COMM 212 Oral Communication in Business

COMM 350 Public Speaking

ENGL 301 Expository Writing

ENGL 307 News Writing and Editing

ENGL 309 Feature and Magazine Writing

ENGL 312 Written Communications in Business

ENGL 410 Technical Writing

THEA 204 Introduction to Voice and Speech

UNIV 402 Senior Thesis (requires completed thesis)

GROUP III: 6 credits from the following 6

ENWC 413 Human Dimensions in Wildlife Conservation

ENWC 450 Debates in Conservation Biology

ENWC 453 Community-based Conservation

FREC 444 Economics of Environmental

	Management
FREC 450	Topics in Environmental Law
GEOG 236	Conservation: Global Issues
PHIL 448	Environmental Ethics
POSC 350	Politics and the Environment

### ELECTIVES

Beyond required courses, sufficient credits must be taken to meet the minimum credits required for the degree. Calculus, organic chemistry, biochemistry, geographic information systems, and physics are strongly recommended. Only two credits of HESC 120 activity or performing music may be counted toward the degree.

CREDITS TO TOTAL A MINIMUM OF 124

### HONORS- ENTOMOLOGY OR WILDLIFE CONSERVATION (BS)

The recipient of this degree must complete:

1. All requirements for the Bachelor of Science: Entomology or Wildlife Conservation.
2. All of the University's requirements for the Honors Baccalaureate degree. Courses with the ENWC prefix taken at the 600-level or higher may be counted as Honors courses in the major. One 3- or 4-credit course in ANFS, PLSC, or BISC will, if taken as Honors, count toward the 12 Honors credits required in the major and/or in collateral disciplines.

### MINOR IN ENTOMOLOGY

The minor in entomology requires 16 credits of ENWC courses including ENWC 205, ENWC 215, ENWC 406, and at least 6 additional credits from courses focused primarily on insects. A minimum grade of C- is required in all courses counting toward the minor. Credits for Special Problem, Independent Study, Research, and Field Experience do not count toward the minor.

### MINOR IN WILDLIFE CONSERVATION

The minor in wildlife conservation requires 18 credits of ENWC courses including ENWC 201, ENWC 205, ENWC 325 and one course from among ENWC 418, ENWC 424, and ENWC 425. Any substitutions require prior approval of the Department Chair. A minimum grade of C- is required in all courses counting toward the minor. Credits for Special Problem, Independent Study, Research, and Field Experience do not count toward the minor. Admission to the Minor in Wildlife Conservation requires: (1) a minimum

GPA of 2.75; (2) prior completion or current enrollment in ENWC 201; and (3) at least 45 credits of coursework remaining to complete the BS or BA, independent of the minor. Students should note that WC majors have priority and sometimes may fill some courses required for the minor. Therefore, the Department cannot guarantee that a student will be able to complete all courses necessary or desired for the minor.

### Food and Resource Economics

Telephone: (302) 831-1318  
 E-mail: [hastings@udel.edu](mailto:hastings@udel.edu)  
<http://ag.udel.edu>  
 Faculty Listing: <http://ag.udel.edu/frec/faculty/facultyStaff.htm>

Food and Resource Economics is concerned with agribusiness management, education, food marketing, and the economics of resource management and production. Courses are designed to provide a thorough background in the principles of organization and management of agribusiness firms, and includes study of financing agricultural business firms, marketing and international trade of agricultural products, price analyses, economics of land use, and agricultural and environmental policies.

Undergraduate majors are offered in Agricultural Education, Food and Agribusiness Marketing and Management, Resource Economics, and Statistics. The curricula differ in the amount of emphasis given to agricultural production, business and economics. All the curricula may qualify the student for graduate work. The department also co-offers Natural Resource Management, an interdisciplinary major. Minors in Food and Agribusiness Marketing and Management, Resource Economics, Statistics, and Operations Research are also available.

The Agricultural Education major prepares the individual for teacher certification in agricultural and natural resources education. It provides students with an opportunity to gain broad understanding and professional preparation in animal science, plant and soil sciences, food science, engineering technology, entomology and wildlife conservation, resource economics, agribusiness and natural resource management. Students develop and practice their leadership skills through participation in FFA activities and other student organizations. Additionally, it provides pedagogical skills in a pragmatic

hands-on program that uses an investigative, scientific, design-and-construct, and problem-solving approach to teaching. The curriculum is designed to allow students to teach in classroom and laboratory settings using modern technology and techniques.

The major in Food and Agribusiness Marketing and Management is offered cooperatively with the Alfred Lerner College of Business and Economics. This curriculum prepares the student for a career in agribusiness sales and marketing, food wholesaling and retailing, international trade, resource management, market analysis, finance and banking, or commodity marketing (futures and options).

Natural Resource Management, an interdisciplinary major, emphasizes an understanding of the economic, physical, legal, and political problems of managing and protecting the environment and related natural resources in today's world. It teaches the skills and capabilities to address those problems in public or private forums. It combines education in economics, and basic and applied biological and physical sciences with the fundamentals of public policy formulation. This major is co-offered by the Departments of Food and Resource Economics, Entomology and Wildlife Ecology, and Plant and Soil Sciences. The curriculum includes courses to help students understand the natural sciences, mathematics and statistics, economics and public policy; appreciate the world's biodiversity; communicate effectively; use computers to manage information; and solve "real world" problems. Students also will have a broad interdisciplinary education in the arts, humanities, social science and environmental ethics. Graduates can continue their education in a variety of graduate areas or seek employment in engineering and environmental consulting firms, and state and federal agencies responsible for environmental protection and natural resource use.

The major in Resource Economics emphasizes theory, quantitative methods, and policy, and provides a solid foundation in economics and business. It prepares the student to work in the fields of agriculture, government, teaching, extension and research. Concentrations in environmental economics and sustainable development are offered as options in the resource economics major.

The Statistics major teaches the collection,

management, analysis and interpretation of data. Statistical methodology is used in virtually every professional field as a way to conduct research and make important decisions. These include the pure sciences, such as biology, chemistry and physics, as well as engineering, business, medicine, and the social sciences (economics, political science, psychology, and sociology).

## **AGRICULTURAL EDUCATION (BS)**

Telephone: (302) 831-4232 or (302) 831-1320  
E-mail: pbarber@udel.edu or alhenry@udel.edu  
<http://ag.udel.edu>

This program offers a Bachelor of Science degree that prepares the individual for teacher certification in agricultural and natural resources education. It provides students with an opportunity to gain broad understanding and professional preparation in animal science, plant and soil sciences, food science, engineering technology, entomology and wildlife conservation, resource economics, agribusiness and natural resource management. Students develop and practice their leadership skills through participation in FFA activities and other student organizations. Additionally, it provides pedagogical skills in a pragmatic hands-on program that uses an investigative, scientific, design-and-construct, and problem-solving approach to teaching. The curriculum is designed to allow students to teach in classroom and laboratory settings using modern technology and techniques.

## **AGRICULTURAL EDUCATION (BS)**

### **CURRICULUM CREDITS**

See University and College Requirements

### **MAJOR REQUIREMENTS**

Communications (COMM 212) 3  
Mathematics (MATH 115 or higher) 3

Physical Sciences 8  
Minimum of eight credits selected from one of the following two-course sequences:  
CHEM 101/CHEM 102 or CHEM 103/CHEM 104  
PHYS 201/PHYS 202 or PHYS 207/PHYS 208

### **Professional Studies**

AGED 180 Introduction to Agricultural Education 3  
AGED 280 FFA and Supervised Agricultural Experiences 3

AGED 448	Student Teaching Seminar	3
AGED 480	Methods of Teaching Agricultural Education I	3
AGED 481	Methods of Teaching Agricultural Education II	3
EDUC 413	Adolescent Development & Educational Psychology	4
EDUC 414	Teaching Exceptional Adolescents	3
EDUC 419	Diversity in Secondary Education	3
EDUC 400	Student Teaching	9
EDUC 420	Reading in the Content Area	1

#### Technical Agriculture 30

Thirty credits of agriculture and natural resource courses from at least three departments in the college are required. Three credits must be FREC 135. A minimum overall GPA of 2.75 is required in these courses. Students are to meet with their Agricultural Education advisor before selecting these courses.

A maximum of three credits of independent study in Food and Resource Economics and a maximum of six credits in all areas, including Food and Resource Economics, may be counted toward the degree.

The Agricultural Education program requires a 2.5 minimum overall GPA and passing scores on the Praxis I test for all three subtests (reading, passing score=175; writing, passing score=173; and mathematics, passing score=174) prior to enrollment in AGED 480 and AGED 481, and proof of having taken the Praxis II test in the appropriate academic content area. A copy of the official score report must be submitted to the Delaware Center for Teacher Education, 200 Academy Street, during enrollment in EDUC 400 Student Teaching or no later than November 1 for January graduates and May 1 for June or summer graduates. An institutional recommendation for certification will not be issued until the candidate has presented the official score report. The teacher education program advisor should be consulted for other policies concerning qualifications for student teaching. A minimum GPA of 2.5 is required in all AGED and EDUC courses.

#### ELECTIVES

After required courses are completed, sufficient credits must be taken to meet the minimum credits required for the degree. Only four credits of activity-type Physical Education or performing Music credit may be counted toward the degree.

CREDITS TO TOTAL A MINIMUM OF 124

### FOOD AND AGRIBUSINESS MARKETING AND MANAGEMENT (BS)

#### CURRICULUM CREDITS

See page University and College requirements

#### MAJOR REQUIREMENTS

Physical Sciences 8  
Minimum of eight credits of lab science selected from Chemistry, Physics, Geology, or Physical Science.

#### Professional Studies

MATH 115	Pre-Calculus or higher level (MATH 221*, MATH 230, and MATH 201 are strongly recommended)	3
ACCT 207/ACCT 208	Accounting I and II	6
COMM 212	Oral Communication in Business	3
ENGL 312	Written Communications in Business	3
ECON 151	Introduction to Microeconomics: Prices and Markets	3
ECON 152	Introduction to Macroeconomics: National Economy	3
BUAD 301	Introduction to Marketing	3

Two additional courses offered by the College of Business and Economics at the 300 or 400 level 6

One foreign language course 3-4

FREC 212	Food Retailing and Consumer Behaviour	3
FREC 135	Introduction to Data Analysis	3
FREC 150	Economics of Agriculture and Natural Resources	3
FREC 240	Quantitative Methods in Agricultural Economics	3
FREC 305	Management and Leadership Development	3
FREC 316	Economics of Biotechnology and New Technologies	3
FREC 345	Strategic Selling and Buyer Communication	3
FREC 404	Food and Fiber Marketing	3
FREC 408	Research Methods I	3
FREC 409	Research Methods II	3
FREC 410	International Agricultural Trade and Marketing	3
FREC 430	Establishing and Managing a Food and Agribusiness Enterprise	3

A maximum of three credits of Independent Study in Food and Resource Economics and a

maximum of six credits of Independent Study in all areas, including Food and Resource Economics, may be counted toward a degree.

\*MATH 221 or higher (with a minimum grade of C+) can be used as a substitute course for MATH 115 and FREC 240.

#### ELECTIVES

After required courses are completed, sufficient credits must be taken to meet the minimum credits required for the degree. Only four credits of HESC 120 activity or four credits of performing Music credit may be counted toward the degree.

Suggested Food and Agribusiness Management Electives:

FREC 212	Food Retailing and Consumer Behavior
FREC 335	Advanced Data Management
FREC 427	Agribusiness Financial Management
FREC 464	Agribusiness Internship
FREC 471	Futures and Options Markets

Suggested Resource Management Electives:

FREC 406	Agriculture and Natural Resource Policy
FREC 424	Resource Economics
FREC 429	Community Economic Development
FREC 444	Economics of Environmental Management
FREC 480	Geographic Information Systems in Natural Resource Management

Suggested Communications and Writing

Electives:

ENGL 301	Expository Writing
ENGL 410	Technical Writing

CREDITS TO TOTAL A MINIMUM OF 124

#### **HONORS - FOOD AND AGRIBUSINESS MARKETING AND MANAGEMENT (BS)**

The recipient of this degree must complete:

1. All requirements for the Bachelor of Science: Food and Agricultural Business Management.
2. All the University requirements for the Honors degree. Courses at the 600-level that satisfy requirements for the major will be considered to be honors courses for the degree.

#### **MINOR IN FOOD AND AGRIBUSINESS MARKETING AND MANAGEMENT**

The minor in Food and Agribusiness Management requires 18 credits with the FREC prefix, including FREC 150 - Economics of Agriculture and Natural Resources. Students must take five of the nine FREC courses listed below with a minimum of two courses in each area:

Marketing/International Trade Area:

FREC 316	Economics of Biotechnology and New Technologies
FREC 345	Strategic Selling and Buyer Communication
FREC 404	Food and Fiber Marketing
FREC 410	International Trade and Marketing
FREC 471	Futures and Options Markets

Management/Decision in Analysis Area:

FREC 305	Management and Leadership Development
FREC 408	Research Methods I
FREC 409	Research Methods II
FREC 430	Establishing and Managing a Food and Agribusiness Enterprise

A minimum grade of C- is required in all courses counting toward the minor.

#### **NATURAL RESOURCE MANAGEMENT (BS)**

#### **HONORS- NATURAL RESOURCE MANAGEMENT (BS)**

#### **RESOURCE ECONOMICS (BS)**

#### **CURRICULUM CREDITS**

See University and College requirements.

#### **MAJOR REQUIREMENTS**

Physical Sciences 8  
Minimum of eight credits of lab science selected from Chemistry, Physics, Geology, or Physical Science.

Professional Studies

MATH 115	Pre-Calculus (MATH 221* or higher is strongly recommended)	3
COMM 212	Oral Communication in Business	3
ENGL 312	Written Communications in	

	Business	3
One foreign language course		3-4
ECON 151	Introduction to Microeconomics: Prices and Markets	3
ECON 152	Introduction to Macroeconomics: National Economy	3
ECON 300	Intermediate Microeconomic Theory	3
ECON 302	Banking and Monetary Policy	3
ECON 303	Intermediate Macroeconomic Theory	3
Two additional courses offered by the College of Business and Economics at the 300-level or higher 6 (Students interested in an Economics minor should see the College of Business and Economics section in this catalog.)		
FREC 135	Introduction to Data Analysis	3
FREC 150	Economics of Agriculture and Natural Resources	3
FREC 201	Records and Accounts	3
FREC 240	Quantitative Methods in Agricultural Economics	3

Seven courses at the 400-level or above with at least two in each of the following three areas: 21-22

1. Theory

FREC 404	Food and Fiber Marketing
FREC 410	International Agricultural Trade and Marketing
FREC 424	Resource Economics
FREC 444	Economics of Environmental Management
FREC 471	Futures and Options Markets

2. Methods

FREC 408	Research Methods I
FREC 409	Research Methods II
FREC 427	Agribusiness Financial Management
FREC 480	Geographic Information Systems in Natural Resource Management

3. Policy

FREC 406	Agriculture and Natural Resource Policy
FREC 420	Agriculture in Economic Development
FREC 429	Community Economic Development
FREC 450	Topics in Environmental Law

A maximum of three credits of Independent Study in Food and Resource Economics and a

maximum of six credits of Independent Study in all areas may be counted toward the degree.

\*Math 221 or higher (with a minimum grade of C+) can be used to substitute for MATH 115 and FREC 240.

**ELECTIVES**

After required courses are completed, sufficient credits must be taken to meet the minimum credits required for the degree. Only four credits of HESC 120 activity or four credits of performing Music credit may be counted toward the degree.

CREDITS TOTOTAL A MINIMUM OF 124

**HONORS- RESOURCE ECONOMICS (BS)**

The recipient of this degree must complete:

1. All requirements for the Bachelor of Science: Resource Economics.
2. All the University requirements for the Honors degree. Courses at the 600-level that satisfy requirements for the major will be considered to be honors courses for the degree.

**RESOURCE ECONOMICS (BS)**

**CONCENTRATION: ENVIRONMENTAL ECONOMICS**

The requirements for the major in Resource Economics must be met.

In addition, five of the following FREC courses must be taken: 15-16

FREC 406	Agriculture and Natural Resource Policy
FREC 424	Resource Economics-Theory and Policy
FREC 429	Community Economic Development
FREC 444	Economics of Environmental Management
FREC 450	Environmental Law and Policy
FREC 480	Geographic Information Systems in Natural Resource Management

FREC courses required for the Resource Economics major may be used to satisfy requirements for the Environmental Economics concentration.

Two additional courses from the College of Business and Economics as required for the

Resource Economics major, plus an additional course (three courses total) must be taken from the following courses. 9

ECON 306	Economic Theory of Politics
ECON 408	Economics of Law
ECON 415	Economic Forecasting
ECON 422	Econometric Methods and Models I
ECON 423	Econometric Methods and Models II
ECON 426	Mathematical Economic Analysis
ECON 433	Economics of the Public Sector
ECON 475	Economics of Natural Resources
ECON 477	Benefit-Cost Analysis

CREDITS TO TOTAL A MINIMUM OF 124

### CONCENTRATION: SUSTAINABLE DEVELOPMENT

The requirements for the major in Resource Economics must be met.

In addition, the following six courses must be taken: 18

FREC 100	Sustainable Development
FREC 410	International Agricultural Trade and Marketing
FREC 424	Resource Economics
FREC 429	Community Economic Development
FREC 444	Economics of Environmental Management
ENWC 201	Wildlife Conservation and Ecology

In addition, one of the following courses must be taken 3

ANTH 330	Development and Underdevelopment
ECON 311	Economics of Developing Countries
GEOG 422	Resources, Development, and the Environment
POSC 311	Politics of Developing Nations
SOCI 460	Women in International Development

CREDITS TO TOTAL A MINIMUM OF 124

### MINOR IN RESOURCE ECONOMICS

The minor in Resource Economics requires 18 credits. Students must take FREC 150 and five of the FREC courses listed below, with a minimum of one course in each area:

1. Theory	
FREC 404	Food and Fiber Marketing
FREC 410	International Agricultural Trade and Marketing
FREC 424	Resource Economics
FREC 444	Economics and Environmental Management
FREC 471	Futures and Options Markets
2. Methods	
FREC 408	Research Methods I
FREC 409	Research Methods II
FREC 427	Agribusiness Financial Management
FREC 480	Geographic Information Systems in Natural Resource Management

3. Policy	
FREC 406	Agriculture and Natural Resource Policy
FREC 420	Agriculture in Economic Development
FREC 429	Community Economic Development
FREC 450	Topics in Environmental Law

A minimum grade of C- is required in all courses counting toward the minor.

### STATISTICS (BS)

#### CURRICULUM CREDITS

See University and College requirements.

#### MAJOR REQUIREMENTS

Communications 6  
 AGRI 212 or COMM 212 3  
 Any three credit course satisfying the College of Arts and Sciences Second Writing Course requirement. Recommended courses are:

ENGL 301	Expository Writing
ENGL 312	Written Communications in Business
ENGL 410	Technical Writing
ENGL 415	Writing in the Professions

Physical Sciences 8  
 Minimum of eight credits of lab science selected from Chemistry, Physics, Geology, or Physical Science.

Professional Studies	
MATH 210	Discrete Mathematics I 3
MATH 242	Analytic Geometry and

	Calculus B	4
MATH 243	Analytic Geometry and Calculus C	4
MATH 245	An Introduction to Proof	3
MATH 349	Elementary Linear Algebra	3
MATH 401	Introduction to Real Analysis	3
MATH 426	Introduction to Numerical Analysis and Algorithmic Computation	3
STAT 200 or STAT 408	3	
STAT 370	Introduction to Statistical Analysis I	3
STAT 371	Introduction to Statistical Analysis II	3
FREC 409	Research Methods II	3
STAT 409	Regression and Experimental Design	3
One of the following: 3		
STAT 611	Regression Analysis	
STAT 615	Design and Analysis of Experiments	
FREC 615	Advanced Prices and Statistics	
STAT 674	Applied Data Base Management	

One of the following options (A, B, or C): 6-9

Option A (for students with previous experience with a programming language)

CISC 181	Introduction to Computer Science and	
CISC 220	Data Structures	

Option B (for students with no previous experience with a programming language)

CISC 105	General Computer Science and	
CISC 181	Introduction to Computer Science and	
CISC 220	Data Structures	

Option C (for students with no previous experience with a programming language)

CISC 105	General Computer Science and	
CISC 120	Object Oriented Programming in C++	
and		
CISC 220	Data Structures	

Area of application 15  
This program requires a fifteen-credit area of application outside Statistics. Students must meet regularly with the advisor to develop it.

Students lacking adequate preparation for MATH 242 should begin with MATH 241. A grade of C- or better is required for all courses

under Professional Studies. A maximum of three credits of independent study in Food and Resources Economics and a maximum of six credits in all areas, including Food and Resource Economics, may be counted toward a degree.

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

#### MINOR IN STATISTICS

A student seeking a minor in statistics must obtain permission from the chairperson or his/her designee in the Department of Food and Resource Economics. Course requirements include STAT 470, STAT 471, STAT 611 Regression Analysis, and FREC 674 cross-listed as STAT 674 Applied Data Base Management. Three additional credit hours in statistics are required above STAT 371. Credit toward the minor will not be given for STAT 475. A minimum grade of C is required in all courses counting toward the minor.

#### MINOR IN OPERATIONS RESEARCH

The Operations Research Minor is designed to provide students with quantitatively based decision-making skills as well as exposure to a broad variety of applications. A student seeking a minor in Operations Research must obtain permission from the chair or his/her designee in the Department of Food and Resource Economics. 18 credit hours are required for the minor.

Required courses: (6 hours)

ORES 401	An Introduction to Operations Research
STAT 470	Introduction to Statistical Analysis I

Remaining four courses are to be selected from the following list:

STAT 471	Introduction to Statistical Analysis II
FREC 335	Advanced Data Management
FREC 409	Research Methods II
FREC 674	Applied Data Base Management
MATH 389	Graph Theory
MATH 529	Linear Programming-Applications and Methods
ECON 415	Economic Forecasting

BUAD 306 Operations Management  
 CIEG 482 Systems Design and Operation  
 CIEG 486\* Engineering Management  
 BREG 401 Introduction to Quality Control  
 BREG 402 Quality Control Applications  
 BREG 416\* Project Economic Analysis  
 BREG 417 Project Management

\*Only 1 of CIEG 486 and BREG 416 can be counted towards the minor. A minimum grade of C is required in all courses counting toward the minor.

Natural Resource Management (BS)

### CURRICULUM CREDITS

See University and College requirements

### MAJOR REQUIREMENTS

BISC 207/BISC 208 Introductory Biology I and II 8  
 CHEM 101/CHEM 102 or CHEM 103/CHEM 104 General Chemistry I and II 8  
 ECON 151 Introduction to Microeconomics 3  
 ECON 152 Introduction to Macroeconomics 3  
 ENWC 201 Wildlife Conservation and Ecology 3  
 MATH 221/MATH 222 Calculus I and II 6  
 FREC 100 Sustainable Development 3  
 FREC 135 Introduction to Data Analysis 3  
 FREC 150 Economics of Agriculture and Natural Resources 3  
 FREC 324 or FREC 424 Intro to Resource Economics or Resource Economics 3  
 FREC 343 or FREC 444 Environmental Economics or Economics of Environmental Management 3  
 FREC 450 Topics in Environmental Law 3  
 FREC 480 Geographic Information Systems in Natural Resource Management 4  
 PLSC 204 Introduction to Soil Science 3  
 PLSC 205 Introduction to Soil Science Laboratory 1

GROUP I: Communications:  
 Written Communication (ENGL 301-Expository Writing, ENGL 312-Written Communications in Business, ENGL 410-Technical Writing, ENGL 415-Writing in the Professions, UNIV 401/UNIV 402 - Senior Thesis, or any course satisfying the

College of Arts and Sciences second writing course requirement.) 3  
 Oral Communication (COMM 212 or FREC 345) 3

GROUP II: Statistics: 6 credits from 6  
 FREC 408/FREC 409 Research Methods I and II

or  
 MATH 201/MATH 202 Introduction to Statistics I and II

GROUP III: Ecosystems:  
 6 credits from the following: 6  
 BISC 302 General Ecology  
 ENWC 325 Wildlife Management  
 ENWC 411 Insect Pest Management  
 ENWC 416 Wildlife Habitat Management  
 ENWC 419 Biological Control  
 ENWC 435 Wildlife Population Dynamics  
 ENWC 456 Conservation Biology  
 PLSC 305 Soil Fertility and Plant Nutrition

GROUP IV: Plants and Animals: 6 credits from the following: 6

BISC 300 Introduction to Microbiology  
 ENWC 205 Elements of Entomology  
 ENWC 215 Entomology Laboratory  
 ENWC 406 Insect Identification Taxonomy  
 ENWC 418 Ornithology  
 ENWC 425 Mammalogy  
 ENWC 426 Aquatic Insects  
 PLSC 212 Woody Landscape Plants  
 PLSC 214 Indigenous Woody Plants of the Eastern U.S.  
 PLSC 303 Introductory Plant Pathology  
 PLSC 404 Plant Taxonomy

GROUP V: Land and Water Management:  
 6 credits from the following: 6  
 BREG 103 Land and Water Management  
 BREG 113 Introduction to Land Surveying  
 BREG 328 Wastewater Treatment Systems  
 GEOL 107 General Geology  
 GEOG 101 Physical Geography: Climatic Processes  
 GEOG 106 Physical Geography: Land Surface Processes  
 GEOG 210 Economic Geography  
 GEOG 220 Meteorology  
 GEOG 320 Water and Society

**GROUP VI: Natural Resource/Environmental Policy:**

9 credits from the following (including a minimum of three credits from FREC): 9

ECON 311	Economics of Developing Countries
ECON 332	Economics of Government Spending and Taxation
ECON 360	Government and Business
ENWC 413	Wildlife Policy and Administration
FREC 406	Agriculture and Natural Resource Policy
FREC 429	Community Economic Development
POSC 220	Introduction to Public Policy

**GROUP VII: Ethics:**

3 credits from the following: 3

PHIL 200	Business Ethics
PHIL 202	Contemporary Moral Problems
PHIL 203	Ethics
PHIL 340	Cross Cultural Environmental Ethics
PHIL 448	Environmental Ethics

**ELECTIVES**

After required courses are completed, sufficient credits must be taken to meet the minimum credits required for the degree. Only four credits of HESC 120 activity or four credits of performing Music credit may be counted toward the degree.

CREDITS TO TOTAL A MINIMUM OF 124

**HONORS- NATURAL RESOURCE MANAGEMENT (BS)**

The recipient of this degree must complete:

1. All requirements for the Bachelor of Science: Natural Resource Management.
2. All of the University's requirements for the Honors Baccalaureate degree. Courses at the 600-level that satisfy requirements in the major will be considered to be Honors courses for the degree.

**Plant and Soil Sciences**

Telephone: (302) 831-2531  
E-mail: [dfrey@udel.edu](mailto:dfrey@udel.edu)  
<http://ag.udel.edu>  
Faculty Listing: <http://ag.udel.edu/plsc/faculty/facultyStaff.htm>

Plant and Soil Sciences includes disciplines of study that apply chemical, biological, and physical principles toward insuring adequate food supplies in a safe and aesthetic environment. Faculty in the department have teaching and research programs in plant molecular biology, botany, anatomy, physiology, taxonomy, genetics-plant breeding, cell and tissue culture, pathology, ornamental horticulture, landscape design, crop and vegetable science, soil chemistry, soil management, soil physics, and soil microbiology. Undergraduate students often are involved in some aspect of these research programs, which strengthens and broadens their understanding of science.

Students can major in Environmental Soil Science, Plant Science, or Landscape Horticulture and Design with a concentration in Landscape Horticulture, Landscape Design or Public Horticulture. Minors are offered in Environmental Soil Science and Landscape Horticulture and Design. The department also co-offers the interdisciplinary majors Natural Resource Management and Plant Protection.

**ENVIRONMENTAL SOIL SCIENCE (BS)**

**CURRICULUM CREDITS**

See University and College requirements.

**MAJOR REQUIREMENTS**

CHEM 101/CHEM 102	
or	
CHEM 103/CHEM 104	General Chemistry I and II 8
CHEM 213	Organic Chemistry 4
CHEM 220/CHEM 221	Quantitative Analysis with Lab 4
ENGL 410	Technical Writing 3
GEOG 220	Meteorology 3
GEOL 107	General Geology I 4
MATH 221	Calculus I 3
PHYS 201	Introductory Physics I 4
PLSC 101	Botany I 4
PLSC 151	Introduction to Crop Science 3
PLSC 204	Introduction to Soil Science 3
PLSC 205	Introduction to Soil Science Lab 1
PLSC 305	Soil Fertility and Plant Nutrition 4
PLSC 319	Environmental Soil Microbiology 4
PLSC 401	Agronomic Crop Science 3
PLSC 438	Fate and Transport of

Contaminants in Soil 3  
PLSC 608 Soil Chemistry 3

One of the following courses: 3-4  
FREC 480 Geographic Information Systems  
in Natural Resource  
Management

or  
GEOG 372 Geographic Information  
Systems

Three of the following courses: 8-9  
BREG 103 Land and Water Management  
BREG 113 Introduction to Land  
Surveying  
BREG 328 Agricultural Waste  
Management  
FREC 150 Economics of Agriculture and  
Natural Resources

#### ELECTIVES

After required courses are completed, sufficient credits must be taken to meet the minimum credits required for the degree. May include the following suggested courses or other electives.

BISC 321 Environmental Biology  
FREC 444 Economics of Environmental  
Management  
GEOG 235 Conservation of Natural  
Resources  
GEOL 415 General Geomorphology  
GEOL 421 Environmental and Applied  
Geology  
GEOL 428 Hydrogeology  
PLSC 303 Introductory Plant Pathology  
PLSC 603 Soil Physics  
PLSC 607 Plant and Soil Water Relations  
PLSC 619 Soil Microbiology  
POSC 350 Politics and the Environment

Only two credits of HESC 120 activity or performing music credit may be counted toward the degree.

CREDITS TO TOTAL A MINIMUM OF 124

#### HONORS- ENVIRONMENTAL SOIL SCIENCE (BS)

The recipient of this degree must complete:

1. All requirements for the Bachelor of Science: Environmental Soil Science.
2. All of the University's requirements for the Honors Baccalaureate degree. Courses at the 600-level that satisfy requirements in the major will be considered to be Honors courses for the degree.

#### MINOR IN ENVIRONMENTAL SOIL SCIENCE

The minor in Environmental Soil Science is open to students in any major and requires a total of 17-18 credits, as follows:

PLSC 204 Introduction to Soil Science 3  
PLSC 205 Introduction to Soil Science Lab 1  
PLSC 305 Soil Fertility and Plant Nutrition 4

Three of the following courses: 9-10  
PLSC 151 Introduction to Crop Science  
PLSC 319 Environmental Soil  
Microbiology

PLSC 401 Agronomic Crop Science  
PLSC 603 Soil Physics  
PLSC 608 Environmental Soil Chemistry

#### LANDSCAPE HORTICULTURE AND DESIGN (BS)

##### CURRICULUM CREDITS

See University and College Requirements.

##### MAJOR REQUIREMENTS

CHEM 101 General Chemistry 4  
MATH 114 or higher College Mathematics and  
Statistics 3  
PLSC 101 Botany I 4  
PLSC 133 Ornamental Horticulture 3  
PLSC 171 New Student Colloquium 1  
PLSC 201 Botany II 4  
PLSC 204 Introduction to Soil Science 3  
PLSC 205 Introduction to Soil Science  
Lab 1  
PLSC 211 Herbaceous Landscape  
Plants 3  
PLSC 212 Woody Landscape Plants 4  
PLSC 214 Indigenous Woody Plants of  
Eastern US 4

In addition to completing the above requirements, one of the following concentrations must be completed:  
Landscape Horticulture  
Landscape Design  
Public Horticulture

Landscape Horticulture Concentration  
In addition to fulfilling the Major requirements, the following requirements also must be completed:

Concentration Requirements  
BREG 113 Introduction to Surveying 2  
ENWC 201 Wildlife Conservation and  
Ecology 3  
ENWC 205 Elements of Entomology 3  
FREC 150 Economics of Ag and Natural

	Resources	3
PLSC 232	Landscape Design I	4
PLSC 331	Landscape Construction Systems	4
PLSC 313	Turf Establishment and Maintenance	4
PLSC 364	Landscape Horticulture Internship	3
PLSC 403	Nursery and Garden Center Management	4
PLSC 455	Issues in Plant and Soil Sciences	3
SPAN 105	Spanish 1-Elementary	4

Three credits from the following Communication courses:

AGRI 212	Oral Communication in Agriculture and Natural Resources
COMM 212	Oral Communication in Business
COMM 350	Public Speaking
ENGL 312	Written Communication in Business
ENGL 410	Technical Writing

Three credits from the following business-related courses:

ACCT 207	Accounting
ACCT 352	Law and Social Issues in Business
ECON 151	Introduction to Microeconomics
ECON 152	Introduction to Macroeconomics
FREC 201	Records and Accounts
FREC 212	Food Retailing and Product Management
FREC 302	Management of Agribusiness Firms
FREC 404	Food and Fiber Marketing
FREC 406	Agricultural and Natural Resource Policy
FREC 430	Establishing and Managing a Food and Agribusiness Enterprise
PHIL 200	Business Ethics
POSC 220	Introduction to Public Policy
POSC 301	State and Local Government
PLSC 333	Bidding and Estimating

#### ELECTIVES

After required courses are completed, sufficient credits must be taken to meet the minimum credits required for the degree. Only two credits of HESC 120 activity or performing music credit may be counted toward the degree.

CREDITS TOTOTAL A MINIMUM OF 124

#### Landscape Design Concentration

Admission to the concentration is required. See below for details. In addition to fulfilling the Major requirements, the following requirements also must be completed:

#### Concentration Requirements

BREG 113	Introduction to Surveying	2
PLSC 103	Landscape and Field Sketching	4
PLSC 202	History of Landscape Design	3
PLSC 232	Basic Landscape Design	4
PLSC 333	Estimating and Bidding	1
PLSC 301	CAD for Landscape Designers	3
PLSC 330	Landscape Construction Materials and Methods	4
PLSC 331	Landscape Construction Systems	4
PLSC 364	Landscape Horticulture Internship	3
PLSC 408	Advanced Landscape Design	4
PLSC 450	Planting Design	4
PLSC 455	Issues in Plant and Soil Sciences	3
SPAN 105	Spanish I - Elementary	4
PLSC 203	Portfolio Review	1

Students will be admitted to the concentration upon successful completion of 45 credit hours of undergraduate study (cumulative grade point average of 2.5 or higher) and submission of an acceptable portfolio of their own work. The Landscape Design Concentration candidate is required to attend their portfolio review. No student will be admitted to the concentration without a successful portfolio review.

Prior to review, a candidate must have successfully completed Landscape and Field Sketching (PLSC 103), a course that will help students prepare a portfolio for the review process; History of Landscape Design (PLSC 202); Basic Landscape Design (PLSC 232); and one of the ART courses listed below. Students should submit 15 to 20 images or examples of their creative work, along with a writing sample, that will offer insight into their creative problem solving skills and experiences in visual arts.

Examples of projects acceptable for the portfolio include (but are not limited to) figure and landscape drawing and/or painting, ceramics, photography, digital design work and written projects. A minimum of one project from each of the required courses must be included in the portfolio.

The candidate's portfolio will be reviewed by a committee comprised of PLSC faculty and professionals in the landscape design field. Students will be reviewed on individual merit and not compared to other applicants. For each review, the portfolios are ranked into two categories: admissible and not admissible. If a student receives a "not admissible" portfolio review, academic advising is provided to help the student choose an alternate concentration based on the talents and strengths of the student.

Three credits from the following Art courses:

ART 129	Design in Visual Arts
ART 130	Drawing I: Tools and Techniques
ART 138	Elementary Drawing and Painting 1

Three credits from the following business-related courses:

ACCT 207	Accounting
ACCT 352	Law and Social Issues in Business
ECON 151	Introduction to Microeconomics
ECON 152	Introduction to Macroeconomics
FREC 201	Records and Accounts
FREC 212	Food Retailing and Product Management
FREC 302	Management of Agribusiness Firms
FREC 404	Food and Fiber Marketing
FREC 406	Agricultural and Natural Resource Policy
FREC 430	Establishing and Managing a Food and Agribusiness Enterprise
PHIL 200	Business Ethics
PLSC 403	Nursery and Garden Center Management
POSC 220	Introduction to Public Policy
POSC 301	State and Local Government

#### ELECTIVES

After required courses are completed, sufficient credits must be taken to meet the minimum credits required for the degree. Only two credits of HESC 120 activity or performing music credit may be counted toward the degree.

CREDITS TO TOTAL A MINIMUM OF 124

#### Public Horticulture Concentration

In addition to fulfilling the Major requirements, the following requirements also must be completed:

Concentration Requirements:

ENWC 205	Elements of Entomology	3
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FREC 150	Economics of Ag and Natural Resources	3
LEAD 100	Leadership, Integrity, and Change	3
LEAD 404	Leadership in Organizations	3
PLSC 202	History of Landscape Design	3
PLSC 253	Triad Internship	3
PLSC 313	Turf Establishment and Maintenance	4
PLSC 433	Public Garden Management	3
PLSC 453	Capstone Public Horticulture Practicum	3
PLSC 465	Seminar: Public Horticulture	1

Three credits from the following Communication courses:

COMM 212	Oral Communication in Business
COMM 350	Public Speaking
ENGL 312	Written Communications in Business

Six credits from the following Business courses:

ACCT 207	Accounting
ACCT 352	Law and Social Issues in Business
FREC 201	Records and Accounts
FREC 406	Agricultural and Natural Resource Policy
PHIL 200	Business Ethics
POSC 220	Introduction to Public Policy
POSC 301	State and Local Government
PLSC 403	Nursery and Garden Center

#### Management

Three credits from the following Related Issues in Management courses:

UAPP 602	Intro. to Comprehensive Planning
UAPP 616	Volunteer Management
UAPP 621	Conflict Resolution
UAPP 642	Strategic Planning: Public & Nonprofits
UAPP 644	Grantsmanship and Proposal Writing
UAPP 670	Fund Dev.: Fundraising from Individuals
UAPP 671	Fund Dev.: Fundraising from Institutions

#### ELECTIVES

After required courses are completed, sufficient credits must be taken to meet the minimum credits required for the degree. Only two credits of HESC 120 activity or performing music credit may be counted toward the degree.

CREDITS TO TOTAL A MINIMUM OF 124

## HONORS- LANDSCAPE HORTICULTURE AND DESIGN (BS)

The recipient of this degree must complete:

1. All requirements for the Bachelor of Science: Landscape Horticulture and Design.
2. All of the University's requirements for the Honors Baccalaureate degree. Courses at the 600-level that satisfy requirements in the major will be considered to be Honors courses for the degree.

## MINOR IN LANDSCAPE HORTICULTURE AND DESIGN

The minor in Landscape Horticulture and Design is open to students in any major and requires a total of 17-18 credits, as follows:

PLSC 101	Botany I	4
PLSC 133	Ornamental Horticulture	3
PLSC 211	Herbaceous Landscape Plants	3
PLSC 212	Woody Landscape Plants	4

One of the following five courses: 3-4

PLSC 204	Introduction to Soil Science
PLSC 232	Landscape Design
PLSC 313	Turf Establishment and Maintenance
PLSC 331	Landscape Construction
PLSC 422	Plant Propagation

## PLANT SCIENCE (BS)

### CURRICULUM CREDITS

See University and College Requirements.

### MAJOR REQUIREMENTS

#### Mathematics

Mathematics course 3

#### Professional Studies

CHEM 101/CHEM 102 General Chemistry I and II

or

CHEM 103/CHEM 104 General Chemistry I and II 8

CHEM 213 Elementary Organic Chemistry 4

One of the following: 3-4

PHYS 201 Introduction to Physics

GEOL 107 General Geology

CHEM 214 Elementary Biochemistry

GEOG 255 Applied Climatology

PLSC 101	Botany I	4
PLSC 201	Botany II	4
PLSC 204	Introduction to Soil Science	3
PLSC 205	Introduction to Soil Science Lab	1
PLSC 300	Principles of Animal and Plant Genetics	3
PLSC 303	Introductory Plant Pathology	4
PLSC 305	Soil Fertility and Plant Nutrition	4
PLSC 410	Introduction to Plant Physiology	3

## ELECTIVES

After required courses are completed, sufficient credits must be taken to meet the minimum credits required for the degree. Only two credits of HESC 120 activity or two credits of performing music credit may be counted toward the degree.

CREDITS TOTOTAL A MINIMUM OF 124

## HONORS - PLANT SCIENCE (BS)

The recipient of this degree must complete:

1. All requirements for the Bachelor of Science: Plant Science.

2. All of the University's requirements for the Honors Baccalaureate degree. Courses at the 600-level that satisfy requirements in the major will be considered to be Honors courses for the degree.

## PLANT PROTECTION (BS)

Telephone: (302) 831-2526 or (302) 831-2531  
email: [jhough@udel.edu](mailto:jhough@udel.edu) or [tomevans@udel.edu](mailto:tomevans@udel.edu)  
<http://ag.udel.edu>

Because of mutual interests and problems in the field of pest management, the Department of Entomology and Wildlife Ecology and the Department of Plant and Soil Sciences offer a joint major, Plant Protection. In a world of expanding human population and increasing pressure on supplies of food and fiber, studies in plant pathology, entomology, and weed science can lead to a challenging and satisfying career that contributes to human welfare. This combined major allows students to study applied and basic aspects of insects, plant diseases, and weeds. Courses and field experience emphasize recognition of pests and their symptoms and strategies for pest management compatible with agriculture and the environment.

## CURRICULUM CREDITS

See University and College requirements.

## MAJOR REQUIREMENTS

FREC 135	Introduction to Data Analysis	3
MATH 115	Pre-Calculus or higher level	3
BISC 207/BISC 208	Introductory Biology I and II	8
CHEM 101/CHEM 102		
or		
CHEM 103/CHEM 104	General Chemistry	8
ENWC 205	Elements of Entomology	3
ENWC 215	Entomology Laboratory	2
ENWC 406	Insect Identification-Taxonomy	3
ENWC 411	Insect Pest Management	3
ENWC 465	Senior Capstone Experience	1
PLSC 151	Intro of Crop Science	3
PLSC 201	Botany II	4
PLSC 303	Introductory Plant Pathology	4
A plant production course selected from PLSC 105, PLSC 133, or PLSC 302		
		3-4
A plant pathology or related course from PLSC 319, PLSC 411, PLSC 416, or PLSC 429		
		3-4
Nine additional ENWC and/or PLSC credits		
		9

## ELECTIVES

Beyond required courses, sufficient credits must be taken to meet the minimum credits required for the degree. Courses in agriculture, biology, statistics, and the physical sciences and additional writing courses are recommended. Only two credits of HESC 120 or performing music may be counted toward the degree.

The choice of department in which to complete the remaining credits provides the student with the opportunity to emphasize applied entomology, plant pathology, or weed science in his or her program. Students should consult with their advisor on course selection to choose electives that will provide an education best suited to their goals.

CREDITS TO TOTAL A MINIMUM OF 124

## The Associate In Science Degree

The College of Agriculture and Natural Resources offers a two-year Associate in Science (AS) degree in Newark. This degree is ideal for students interested in agriculture who desire to spend only two years working toward a degree or who are unsure of their plans for higher education. Admission requirements for the associate degree are the same as for the baccalaureate degree.

The Associate in Science offers an extremely flexible curriculum. The student must complete a minimum of 62 credit hours, with at least 30 of the credits earned within at least four of the five departments in the college. A minimum of 32 credits for the degree must be earned at the University of Delaware. In addition, the recipient must have a minimum GPA of 2.0. A candidate must apply for the associate degree during the academic term in which all requirements for the degree are to be completed and must, at the time of application, be enrolled in the college.

Although not recommended, a student could take all 62 credits in agricultural courses. A better approach would be for the student to take some course work in the areas of physical science, social science, English, and mathematics, along with his or her courses in agriculture. This approach would allow the student to more easily complete a BS degree program at a later date.

## College of Arts and Sciences

### College of Arts and Sciences

The College of Arts and Sciences represents a range of academic disciplines and contributes to the general and professional education of all undergraduate students at the University. The College offers major programs leading to the Bachelor of Arts, Bachelor of Science, Bachelor of Arts in Liberal Studies, Bachelor of Fine Arts, and Bachelor of Music, as well as Associate (two-year) degrees.

Undergraduate students enrolled in the College of Arts and Sciences may choose from a number of degree programs and options designed to permit flexibility in the pursuit of their educational goals, within guidelines or requirements established by the faculty. These formal requirements ensure that all students in the college complete courses representative of each of the major disciplinary groupings in the College: Creative Arts and Humanities, History and Cultural Change, Social and Behavioral Sciences, and Mathematics, Natural Sciences and Technology.

The intent of these requirements is to provide students appreciation of the materials and methodologies of each area and to foster awareness that the works of an artist, historian, novelist, sociologist, and physicist may all be equally valid representations of reality. In the process, students develop a heightened understanding of all aspects of human environment, intellectual curiosity, respect for fact, perception of the complexity of truth, skill in reasoning, and concern for integrity and logical consistency, and acquire perceptions, skills, and attitudes to assist them in achieving a full and satisfying life.

In addition to the requirements listed for the various degrees, students must fulfill the general University requirements for baccalaureate degrees listed in the all-campus Academic Regulations for Undergraduates section of this catalog.

For more information about the College of Arts and Sciences, please visit the college web site at [www.art-sci.udel.edu/](http://www.art-sci.udel.edu/)

#### Advisement

Students who have declared majors will be assigned an advisor who is a faculty member

in the appropriate department. All freshman students who have earned less than 28 credit hours are required to seek advisement during preregistration for the spring and fall semesters. All other students are strongly encouraged to meet at least once each semester with their academic advisors.

Preprofessional advisement committees are available to advise students who plan to study dentistry, law, medicine, social work, or veterinary medicine. Dean's Office personnel will be glad to direct students to appropriate faculty members.

#### General Degree Requirements Information

**Pass/Fail Grade Option.** Courses to fulfill degree requirements may not be taken pass/fail unless they are offered only on a pass/fail basis. Students may elect to take one course per semester pass/fail. A total of no more than 24 credits may be taken pass/fail for a Bachelor's degree and no more than 12 credits for an Associate's degree. For more detailed information on the pass/fail grade option, see the chapter on Academic Regulations.

**Physical Education.** A maximum of two credits of HESC 120 may be counted toward the required minimum credits of all degrees in the college.

**Duplicate Credits.** Credits may be counted only once toward a degree. Courses repeated to improve a passing grade may not be counted a second time toward the minimum total credit hours required. Certain courses offered in a sequence will not be counted toward a degree if taken in reverse order of difficulty, e.g., FREN 105 course would not be counted if taken after FREN 107; similarly, MATH 115 would not be acceptable if taken after MATH 221.

Certain other courses have sufficient overlap of content, although taught at different degrees of difficulty, that credit would not be offered for both courses regardless of the order taken. For instance, credit will be offered only once for the following pairs of courses: MATH 221 and MATH 241, MATH 222 and MATH 242.

#### Course of Study Options

**Single Major.** A departmental major consists of at least 30 credits with the specified and

elective courses determined by the individual department.

Several departments, e.g., English and History, have a number of internal options or specializations. To round out the departmental major, students may be required to take a designated number of credits of related work determined in consultation with a faculty advisor.

The faculty of the college have ruled that for the Bachelor of Arts degree, a maximum of 45 credits with the same departmental prefix may be applied to the total number of credits required for the degree. A cross-listed course will be considered a part of the 45 credit total, regardless of which prefix a student used to register for the course.

Students who choose a single major will normally have a number of "free elective" credits. Considerable thought should be given to the best use of these elective credits.

**Double Major.** This involves fulfilling the major requirements of two Bachelor of Arts or two Bachelor of Science majors. The advantage of a double major is that the student is able to develop and demonstrate strength in each area covered in the undergraduate program. Admission to double major status requires the approval of both departments and the dean(s) of the college(s). The minimum grade necessary in all courses required for the double major is the same as that needed for a single major in that degree program.

**Interdepartmental Major.** Students whose goals and interests heavily involve materials from two departments but do not extend to all aspects of each subject area may work out and submit for the approval of both departments and the dean of the college an interdepartmental proposal. More detailed instructions on the Interdepartmental Major are available in the Dean's Office, but basically this major involves a minimum of 21 credits from each department with another nine credits that may be distributed in a number of ways. Examples of departments frequently combined in such programs are Communication and English or Political Science and Economics. With the approval of the other college or department, one area of the interdepartmental major may be from outside the College of Arts and Sciences. The interdepartmental major always leads to the Bachelor of Arts degree.

A minimum grade of C- is normally required in all courses constituting the 21 credits of each area, and a C average is necessary for all the 51 credits in the interdepartmental major.

**Area Study.** Opportunity is provided for students interested in pursuing a broader field of study such as Comparative Literature, International Relations or Latin American Studies. Students majoring in International Relations are required to take 51 credits distributed among appropriate departments. Thirty of the 51 credits must be earned with at least a C- grade, and a C average is required for the total of the 51 credits.

**Minors.** In addition to the major, students may also elect to complete one or two minor programs. Departments offering a minor set their own requirements, but these always include at least 15 credits of course work. A minimum grade of C- is required in all courses for a minor. (See the Synopsis of minors.)

## **BACHELOR OF ARTS**

This degree, offered by all departments of the College of Arts and Sciences, with the exception of Linguistics and Cognitive Science, is awarded to those students who follow a broad course of study and is designed to provide a liberal education. For this degree, students must complete a minimum of 124 credits composed of requirements for general education, college skills and breadth requirements, required courses in a major, and elective courses. A grade of C- is required in all major courses. No more than 45 credits with the same departmental prefix (including cross-listed courses) may be counted toward the total required for the degree.

### **CORE CURRICULUM: CREDITS**

#### **UNIVERSITY REQUIREMENTS**

ENGL 110 Critical Reading and Writing  
(minimum grade C-) 3

ENGL 110 will be taken by all students as freshmen. ENGL 110 must be completed by the time a student has earned 60 credits. Students who transfer into the College of Arts and Sciences with 45 credits or more must complete this requirement within two semesters. Transfer students who have completed college-level courses in research writing should check the English Department website to see if they qualify

for exemption: <http://www.english.udel.edu/transfer.htm>.

First Year Experience (FYE) 0-4

University Breadth Requirement  
Up to 3 credits from each of the University Breadth Requirement categories may be used to simultaneously satisfy the College of Arts and Sciences Breadth Requirements. 12

Discovery Learning Experience (DLE) 3

Multi-cultural Courses (MCC) 3

## COLLEGE OF ARTS AND SCIENCES REQUIREMENTS

### SKILLS

Second Writing Requirement: (minimum grade C-) 3

A second writing course involving significant writing experience including two papers with a combined minimum of 3,000 words to be submitted for extended faculty critique of both composition and content. This course must be taken after completion of 60 credit hours. Appropriate writing courses are designated in the semester's Registration Booklet.

Mathematics: 0-4  
(Complete one of the following four options.  
(minimum grade D-)

#### OPTION ONE:

MATH 113 Contemporary Mathematics  
(designed for students who do not intend to continue the study of mathematics)

or

MATH 127 Mathematics and Quantitative Reasoning

#### OPTION TWO:

MATH 114 College Mathematics and Statistics (designed for students who do not intend to continue the study of mathematics)

or

MATH 115 Pre-Calculus (designed for students who intend to continue the study of mathematics)

or

MATH 117 Pre-Calculus for Scientists and Engineers (designed to prepare students for MATH241)

#### OPTION THREE:

Successful completion of any mathematics course at or above the 200-level except MATH 201, MATH 202, MATH 205, MATH 250, MATH 251, MATH 252, MATH 253, MATH 266, MATH 300 or MATH 450.

#### OPTION FOUR:

Successful performance on a proficiency test in mathematics administered by the Department of Mathematical Sciences. (0 credits awarded)

The math requirement must be completed by the time a student has earned 60 credits. Students who transfer into the College of Arts and Sciences with 45 credits or more must complete this requirement within two semesters.

Foreign Language: (minimum grade D-) 0-12

Completion of the intermediate-level course (107 or 112 or 214) in an ancient or modern language. The number of credits needed and initial placement will depend on the number of years of high school study of foreign language. Students with four or more years of high school work in a single foreign language, or who have gained proficiency in a foreign language by other means, may attempt to fulfill the requirement in that language by taking an exemption examination through the Foreign Languages and Literatures Department.

### BREADTH

#### COLLEGE OF ARTS AND SCIENCES BREADTH REQUIREMENTS: (minimum grade C-)

These Breadth requirements apply to all Bachelor of Arts degrees. The College Breadth requirements are in addition to the University Breadth requirement. Up to 3 credits from each of the University Breadth Requirement categories may be used to simultaneously satisfy these College of Arts and Sciences Breadth Requirements.

Group A Creative Arts and Humanities 9

These courses provide students with an understanding and appreciation of the visual and performing arts, of aesthetic forms, designs, or craftsmanship, or of literary, philosophical, and intellectual traditions. Courses may focus on a single aesthetic form or intellectual tradition, or cross-cultural comparisons. Nine credits of courses representing at least two departments or appropriate instructional units.

**Group B History and Cultural Change 9**  
These courses provide students with an understanding of the sources and forces of historical changes in ideas, beliefs, institutions, and cultures. Courses may address social, cultural, intellectual, economic, technological, artistic, scientific, and political development, changes in a discipline, or globalization and its effects.

Nine credits of courses representing at least two departments or appropriate instructional units.

**Group C Social and Behavioral Sciences 9**  
These courses provide students with an understanding of the behavior of individuals and social groups in the context of their human and natural environments. Courses emphasize the empirical findings, applications, and methods of the social and behavioral sciences. Nine credits of courses representing at least two departments or appropriate instructional units.

**Group D Mathematics, Natural Sciences and Technology 10**  
These courses provide students with an understanding of fundamental and/or applied concepts and phenomena from mathematics, logic, natural or physical sciences, and technology including quantitative reasoning and methods used to approach and solve problems. Ten credits of courses representing at least two departments or appropriate instructional units and including a minimum of one course with an associated laboratory. The laboratory component provides exposure to the working methods of science.

If the grade earned is sufficient, a course may be applied toward more than one requirement (e.g., breadth and major requirements), but the credits are counted only once toward the total credits for graduation. If all but one course in a group has been taken in one department or program, a course cross-listed with that program will not satisfy the distribution requirement.

### **Bachelor Of Science, Bachelor Of Fine Arts, Bachelor Of Music**

Students whose goals indicate a high level of concentration or specialization may elect to fulfill requirements for the Bachelor of Science degree offered in a number of majors. Similar degrees are the Bachelor of Fine Arts, with a heavy concentration on studio work, and the Bachelor of Music, with its own areas of specialization.

Curricular details for all of these degree programs can be found in the sections devoted to the individual departments.

### **Bachelor Of Arts In Liberal Studies**

An option that offers a great deal of flexibility is the Bachelor of Arts in Liberal Studies (BALS). The degree is designed for students who have need and justification for developing their own undergraduate major program within the 124-credit minimum. For requirements, see the Liberal Studies section.

### **Associate Degrees**

The nonterminal degrees of Associate in Arts (AA) and Associate in Science (A.S.) may be awarded upon application; students must apply before completing 75 credit hours. Information regarding admission requirements and eligibility for the associate degree programs may be found in the Undergraduate Admissions section of this catalog. Academic advisement is coordinated by the College of Arts and Sciences Undergraduate Academic Services office at 219 Mitchell Hall (302-831-3020).

The Associate in Arts represents completion of the first half of a Bachelor of Arts program; the Associate in Science, the first half of a Bachelor of Science program. Specific requirements follow:

### **Associate In Arts Requirements**

If any of the course requirements are satisfied through proficiency tests or exams, elective credits must be substituted to make up 60 hours. Courses taken to fulfill specific group, math, or language proficiency or multicultural requirements must be taken for a regular grade, not pass/fail.

### **CURRICULUM CREDITS**

#### **UNIVERSITY REQUIREMENTS**

Writing  
ENGL 110 (minimum grade C-) 3  
or  
Exemption 0  
First Year Experience (FYE) 0-4

University Breadth Requirement  
Up to 3 credits from each of the University Breadth Requirement categories may be used to simultaneously satisfy the College of Arts and Sciences Breadth Requirements. 12

Multi-cultural Courses (MCC) 3

#### SKILL REQUIREMENTS

Mathematics (one of the following) 0-4

MATH 113

or

MATH 127

or

MATH 114

or

MATH 115

or

Successful completion of any mathematics course at or above the 200-level except MATH 201, MATH 202, MATH 250, MATH 251, MATH 252, MATH 253, MATH 266, or MATH 450.

or

Proficiency Test

Foreign Language (one of the following) 0-4

Elementary Level

or

Proficiency Test (0 credits awarded)

#### COLLEGE OF ARTS AND SCIENCES BREADTH REQUIREMENTS

Courses in each of the groups A-D must be taken in at least two departments. If all but one course in a group has been taken in one department or program, a course cross-listed with that department or program will not satisfy the distribution requirement.

##### Group A. Creative Arts and Humanities

These courses provide students with an understanding and appreciation of the visual and performing arts, of aesthetic forms, designs, or craftsmanship, or of literary, philosophical, and intellectual traditions. Courses may focus on a single aesthetic form or intellectual tradition, or cross-cultural comparisons. 9

##### Group B. History and Cultural Change

These courses provide students with an understanding of the sources and forces of historical changes in ideas, beliefs, institutions, and cultures. Courses may address social, cultural, intellectual, economic, technological, artistic, scientific, and political development, changes in a discipline, or globalization and its effects. 9

##### Group C. Social and Behavioral Sciences

These courses provide students with an understanding of the behavior of individuals and

social groups in the context of their human and natural environments. Courses emphasize the empirical findings, applications, and methods of the social and behavioral sciences. 9

##### Group D. Mathematics, Natural Sciences and Technology

These courses provide students with an understanding of fundamental and/or applied concepts and phenomena from mathematics, logic, natural or physical sciences, and technology including quantitative reasoning and methods used to approach and solve problems. Ten credits of courses representing at least two departments or appropriate instructional units and including a minimum of one course with an associated laboratory. 10

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree. Students may opt to take one free elective course per semester pass/fail, but the total number of credits taken on a pass/fail basis may not exceed 12, excluding courses that are graded pass/fail only. Courses numbered below 100-level do not count toward a degree.

CREDITS TO TOTAL A MINIMUM OF 60

#### Associate in Science Requirements

If any of the course requirements are satisfied through proficiency tests or exams, elective credits must be substituted to make up 60 hours. Courses taken to fulfill specific group, math, or language proficiency or multicultural requirements must be taken for a regular grade, not pass/fail.

#### CURRICULUM CREDITS

##### UNIVERSITY REQUIREMENTS

Writing

ENGL 110 (minimum grade C-) 3

or

Exemption 0

First Year Experience (FYE) 0-4

University Breadth Requirements 12

Up to 3 credits from each of the University Breadth Requirement categories may be used to simultaneously satisfy the College of Arts and Sciences Breadth Requirements.

Multi-cultural Courses (MCC) 3

## SKILL REQUIREMENTS

Mathematics (one of the following) 6-8

MATH 221-222

or

MATH 241-242

Foreign Language (one of the following) 0-4

Required if there is a language requirement for the corresponding Bachelor of Science degree.

One of the following:

Elementary Level

or

Proficiency Test (0 credits awarded)

## COLLEGE OF ARTS AND SCIENCES BREADTH REQUIREMENTS

Courses in each of the groups A-D must be taken in at least two departments. If all but one course in a group has been taken in one department or program, a course cross-listed with that department or program will not satisfy the distribution requirement.

Group A. Creative Arts and Humanities 9

Group B. History and Cultural Change 9

Group C. Social and Behavioral Sciences 9

Group D. Mathematics, Natural Sciences and Technology 12

At least one course in Group D must be an approved laboratory science course.

## ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

Students may opt to take one free elective course per semester pass/fail, but the total number of credits taken on a pass/fail basis may not exceed 12, excluding courses that are graded pass/fail only. Courses numbered below 100-level do not count toward a degree.

CREDITS TO TOTAL A MINIMUM OF 60

## Dean's Scholar Program

The Dean's Scholar Program exists to serve the needs of students whose clearly defined educational goals cannot be effectively achieved by pursuing the standard curricula for all existing majors, minors, and interdepartmental majors sponsored by the University. Driven by an overarching passion or curiosity that transcends

typical disciplinary bounds and curricula, a Dean's Scholar's intellectual interests may lead to broad interdisciplinary explorations of an issue or to more intense, in-depth studies in a single field at a level akin to graduate work. In consultation with faculty advisors and the Program Director, Dean's Scholars design an imaginative and rigorous individual plan of study to meet the total credit hours required for graduation. Dean's Scholars in Arts and Sciences and in Agriculture and Natural Resources may qualify for Honors Degrees. Contact the Program Director or go to: [www.udel.edu/deansscholar/](http://www.udel.edu/deansscholar/) for more information and the application.

## Liberal Arts/Engineering

These five-year programs combine work in liberal arts and engineering and lead to the simultaneous awarding of a Bachelor's degree in Arts and Sciences and a Bachelor's degree in the appropriate engineering field. For complete details on these programs, see the Arts and Sciences-Engineering Curricula section.

## Teacher Education Programs

The College of Arts and Sciences offers teacher education programs for students who wish to prepare themselves to be certified teachers in Delaware or in other states and the overseas dependency schools. For secondary certification (high school, junior high school, middle school), programs are offered in biology, chemistry, English, foreign languages (French, German, Italian, Latin, Spanish), mathematics, physics, and social studies (anthropology, geography, history, political science, psychology, and sociology). For K-12 certification, teacher education programs are offered in music (instrumental, keyboard, voice) and Foreign Languages.

Each degree program in teacher education requires a certain minimum GPA for enrollment in EDUC 400, Student Teaching, a course required for the degree. The appropriate teacher education program advisor should be consulted for the exact GPA requirements and other policies concerning qualifications for student teaching.

See Teacher Education Programs in the College of Human Services, Education and Public Policy section of this catalog for more information, including a list of program advisors.

## **Pre-Law**

Students interested in admission to law school are free to major in any subject they choose. Because no single major is preferred for entry to law school, the University provides advisement and information about law school admissions through the Pre-Law Advisement Committee. The Committee's members come from different disciplines across campus, so students have a choice of advisors. The Committee is a member of the Northeast Association of Pre-Law Advisors and regularly receives and circulates information from the American Association of Law Schools. UD students enjoy a rate of acceptance into law school that is higher than the national average, according to figures released by the Law School Admission Council.

The Career Services Office provides information on internships, summer job opportunities, and volunteer opportunities in the legal profession, and sponsors an annual Law School Fair, usually held in September. There is also an active Pre-Law Student Association, which sponsors field trips and guest speakers.

For more information, consult the Advisement Committee's bulletin board on the third floor of Smith Hall or the Pre-Law web site at [www.udel.edu/prelaw](http://www.udel.edu/prelaw). Questions may be addressed to Committee Chair Professor Leslie Goldstein, 458 Smith Hall, telephone (302) 831-1931, or by e-mail to committee advisors listed at the pre-law web site.

## **Premedicine And Pre dentistry**

Preparation for admission to professional schools in medicine, dentistry, pharmacy, and related fields must include specific course work in biology, chemistry, physics and mathematics. Although many preprofessional students major in biology or chemistry, because these disciplines include the science training required, nonscience majors are acceptable and, in fact, encouraged by many professional schools.

Preprofessional students usually begin their career-related course work in the first semester of the freshman year in order to complete the relevant courses before taking professional aptitude tests as juniors. Early academic advisement is essential to ensure that the preprofessional curriculum requirements are met. The Health Sciences Advisory and

Evaluation Committee coordinates advisory services for all students preparing for admission to health-related professional schools. Call (302) 831-2282 for information or consult the Preprofessional Programs website at: [www.udel.edu/Biology/premed/home.html](http://www.udel.edu/Biology/premed/home.html)

The University participates in a cooperative medical education program with the Medical Center of Delaware and the Jefferson Medical College of Philadelphia, sponsored by the Delaware Institute for Medical Education and Research. Under the terms of this program, up to twenty students who are Delaware residents will be accepted for admission to Jefferson Medical College. A portion of the clinical training of these students takes place in the Medical Center of Delaware. Information on application to this program may be obtained from the office of the Associate Chair of the Department of Biological Sciences.

The University of Delaware and the Thomas Jefferson University College of Health Professions sponsor a joint program leading to a Bachelor of Science degree at the University of Delaware and a graduate degree in pharmacy at Thomas Jefferson University.

The University of Delaware also participates with Jefferson Medical College in the Medical Scholars Program which permits selected students to begin their medical education while undergraduates at the University.

## **Medical Scholars Program**

This unique premedical program is jointly sponsored by the University of Delaware and the Jefferson Medical College in Philadelphia and serves to prepare students to deal with society's changing health care needs. Providing for a balanced education in liberal arts, sciences and professional studies, the curriculum includes traditional courses in science and mathematics as well as in the humanities, ethics, social sciences, economics, political sciences and health policy. Problem-based instruction, group discussions and practica in clinical settings are unique aspects of the program. Medical Scholars work toward a Bachelor of Arts in Liberal Studies degree and receive conditional acceptance to the Jefferson Medical College as early as their sophomore year at Delaware after completing at least a year in an interest group.

For more information contact the faculty coordinator at (302) 831-2793 or consult the Medical Scholars web site at [www.udel.edu/MedScholars](http://www.udel.edu/MedScholars).

### Courses Approved for Second Writing Requirement

NOTE: The following is a list of courses eligible to be taught as Arts and Sciences Second Writing courses. These courses are not, however, always taught to fulfill the second writing requirement. Only the specific sections designated within each academic term will satisfy the second writing requirement. Please check the UDSIS registration system to ascertain whether a particular course section will be offered as a second writing course. Only a limited number of courses, when transferred from another institution, will satisfy the second writing requirement.

#### Anthropology (ANTH)

ANTH 486 Tutorial in Social and Cultural Anthropology  
 ANTH 487 Tutorial in Archaeology  
 ANTH 488 Tutorial in Physical Anthropology

#### Art (ART)

ART 315 Issues in Contemporary Art

#### Art History (ARTH)

ARTH 213 Art of the Northern Renaissance  
 ARTH 250 Rulers' Images: Augustus to Washington  
 ARTH 301 Research and Methodology in Art History  
 ARTH 302 Prints and Society  
 ARTH 310 The Role of the Artist in Society  
 ARTH 311 Renaissance Women, Society and Art  
 ARTH 402 Undergraduate Seminar: History of Art  
 ARTH 405 Seminar in Greek and Roman Art  
 ARTH 406 Seminar in Medieval Art  
 ARTH 408 Seminar in Northern Renaissance Art  
 ARTH 413 Seminar in Renaissance Art and Architecture  
 ARTH 417 Seminar in Northern Baroque Art  
 ARTH 423 Seminar in Twentieth Century Art  
 ARTH 429 Seminar in Modern Architecture  
 ARTH 431 Seminar in American Architecture  
 ARTH 435 Seminar in American Art  
 ARTH 445 Seminar in East Asian Art  
 ARTH 456 Seminar in Contemporary Architecture

#### Arts and Sciences (ARSC)

ARSC 316 Honors: Peer Tutoring/Advanced Composition (cross-listed with ENGL 316)

#### Biology (BISC)

BISC 498 Topics in Biology

#### Black American Studies (BAMS)

BAMS 415 Race, Class and Gender (cross-listed with SOCI 415 and WOMS 415)  
 BAMS 416 Psychological Perspectives; Black American  
 BAMS 418 Race, Gender and Poverty (cross-listed with SOCI 418)

#### Chemistry (CHEM)

CHEM 410 History of Chemistry

#### Communication (COMM)

COMM 311 Public Relations Writing  
 COMM 329 Broadcast News Writing  
 COMM 418 Topics in Mass Communication  
 COMM 424 Media Message Analysis

#### Cognitive Science (CGSC)

CGSC 485 Seminar in Cognitive Science

#### Criminal Justice (CRJU)

CRJU 312 History of Crime and Criminal Justice (cross-listed with HIST 312)  
 CRJU 415 Sex Crimes and Punishments  
 CRJU 428 Corporate Crime (cross-listed with SOCI 428)  
 CRJU 452 Drugs and the Criminal Justice System (cross-listed with SOCI 452)  
 CRJU 456 Lawyers and Society (cross-listed with SOCI 456)  
 CRJU 460 Criminal Justice Policy  
 CRJU 489 Crime Victims and Victims' Rights

#### English (ENGL)

ENGL 280 Approaches to Literature  
 ENGL 301 Expository Writing  
 ENGL 302 Advanced Composition  
 ENGL 304 Poetry Writing  
 ENGL 305 Fiction Writing  
 ENGL 306 Topics in Writing  
 ENGL 307 News Writing and Editing  
 ENGL 309 Feature and Magazine Writing  
 ENGL 312 Written Communications in Business  
 ENGL 316 Honors: Peer Tutoring/Advanced

	Composition (cross-listed with RSC 316)	480 and WOMS 480)
ENGL 317	Film History	Foreign Languages and Literatures (FLLT)
ENGL 318	Studies in Film	FLLT 321 Topics: Chinese Literature in Translation
ENGL 320	The Bible as Literature	FLLT 328 Topics in Japanese Literature in Translation (cross-listed with WOMS 328)
ENGL 321	Medieval Literature and Culture	FLLT 329 Topics in Italian Literature in Translation (cross-listed with WOMS 329)
ENGL 322	Chaucer	FLLT 330 Varying Authors, Themes and Movements
ENGL 323	Studies in Medieval Literature	FLLT 338 Light and Shadow - Japanese Films
ENGL 324	Shakespeare	FLLT 380 Topics in Japanese Culture in Translation
ENGL 325	Renaissance Literature	FLLT 490 One World: Cinematic Perspectives on Cultural Diversity
ENGL 326	Studies in Renaissance Literature	FLLT 495 One World: Literary Perspectives on Cultural Diversity
ENGL 328	Milton	
ENGL 331	The Age of Satire	Geography (GEOG)
ENGL 332	Studies In Restoration &18TH Century Literature	GEOG 346 Urban Cultural Geography
ENGL 333	British Romanticism	GEOG 445 Method and Theory in Geography
ENGL 336	Victorian Poetry	Geology (GEOL)
ENGL 337	Victorian Prose	GEOL 401 Senior Seminar: Topics in Geoscience
ENGL 338	Victorian Fiction	
ENGL 340	American Literature to the Civil War	History (HIST)
ENGL 341	American Literature Civil War to World War II	HIST 130 Islamic Near East: 600-1500
ENGL 342	American Literature Since World War II	HIST 131 Islamic Near East: 1500 to the Present
ENGL 344	African American Literature I	HIST 300 Women in American History (cross-listed with WOMS 300)
ENGL 345	African American Literature II	HIST 302 The World in Our Time
ENGL 347	Studies in American Literature	HIST 307 The U.S. in the Early National Period
ENGL 348	Contemporary Jewish-American Literature	HIST 308 The U.S. in the Antebellum Period
ENGL 351	Introduction to Irish Literature	HIST 309 U.S. Business and Political Economy
ENGL 352	Studies in 19th-Century Literature	HIST 312 History of Crime and Criminal Justice
ENGL 356	Studies: Modern/Contemporary Literature	HIST 313 The United States, 1877-1914
ENGL 365	Studies: Literature Type, Genres, and Movements	HIST 318 Colonial America
ENGL 368	Literature and Science	HIST 319 Revolutionary America
ENGL 371	Studies: Fiction	HIST 323 The Old South
ENGL 372	Studies: Drama	HIST 328 American Industrial Society: 1815 to Present
ENGL 373	Studies: Poetry	HIST 330 Peasants and Revolution in Africa
ENGL 376	World Literature	HIST 341 Ancient Rome
ENGL 380	Women Writers	HIST 346 Age of Louis XIV
ENGL 382	Studies: Multicultural Literature in Engl	HIST 347 The French Revolution and Napoleon
ENGL 385	Studies: Literary Criticism and Theory	HIST 348 History of Spain: 1479 to Present
ENGL 386	Asian American: Culture and Hist	
ENGL 409	Topics in Journalism	
ENGL 410	Technical Writing	
ENGL 411	Rhetoric for Business and Technical Writers	
ENGL 412	Business and Technical Publication	
ENGL 413	Topics in Technical Writing	
ENGL 415	Writing in the Professions	
ENGL 416	Designing Online Information	
ENGL 480	Seminar (cross-listed with CMLT	

HIST 349	Modern Latin America: 1800 to Present	MUSC 311	Music History: 400 through 1600
HIST 352	Contemporary European Society	MUSC 312	Music History: 1600 through 1827
HIST 353	Modern Germany: 1770 to 1919	MUSC 313	Music History: 1827-Present
HIST 354	Germany in 20th Century: 1914 to Present	MUSC 345	History of Theatre: American Musical Theatre
HIST 355	Early Modern Intellectual History		
HIST 356	Modern European Intellectual History	Philosophy (PHIL)	
HIST 359	Soviet Russia: 1917 to 1990	PHIL 444	Medical Ethics
HIST 361	Twentieth Century France	PHIL 463	Ethical Theory
HIST 365	Topics in East Asian History	PHIL 465	Senior Seminar
HIST 368	Modern China: 1600-1920s		
HIST 369	China Since 1900	Physics (PHYS)	
HIST 370	History of Modern Japan	PHYS 460	Computational Methods of Physics
HIST 372	Popular Culture in Urban Japan	PHYS 480	History of Physics
HIST 373	Modern Ireland: 1534 to Present	PHYS 650	Quantum Computation
HIST 377	Radicalism and Revolution: Islamic Movements in the Modern Middle East		
HIST 378	Nationalism in the Modern Middle East	Political Science (POSC)	
HIST 380	History of the Arab-Israeli Conflict	POSC 380	Introduction to Law
HIST 393	History of Modern Vietnam	POSC 387	American Political Thought
HIST 397	History of South Africa	POSC 408	International Organizations
HIST 411	Seminar in American History	POSC 414	Topics in American Foreign Policy
HIST 430	Seminar in Twentieth-Century Latin American Revolutions	POSC 415	Force and World Politics
HIST 439	Women and Revolution in Africa (cross-listed with WOMS 439)	POSC 422	Political Leadership
HIST 440	Seminar in Africa Under Colonial Rule	POSC 426	Latin American Political Systems
HIST 471	Seminar in Medieval History (cross-listed with WOMS 472)	POSC 433	African Politics
HIST 473	Seminar in Early Modern European History (cross-listed with WOMS 473)	POSC 434	Political Thought I
HIST 474	Seminar in British History	POSC 435	Political Thought II
HIST 475	Seminar in Modern European History	POSC 436	Politics and Literature
HIST 477	Seminar in Latin American History	POSC 446	International Human Rights on Film (taught in Southern Delaware)
HIST 479	Seminar in Asian History	POSC 448	Theories of International Relations
Health (HLTH)		POSC 450	Topics in Latin American Politics
HLTH 241	Ethical Aspects of Health Care		
Material Culture Studies (MCST)		Psychology (PSYC)	
MCST 402	American Material Cultural Studies	PSYC 314	Brain and Behavior
		PSYC 350	Developmental Psychology
		PSYC 380	Psychopathology
		PSYC 394	Cultural Psychology
		PSYC 414	Drugs and the Brain
		PSYC 415	History and Systems of Psychology
		PSYC 416	Psychological Perspectives on the Black American (cross-listed with BAMS 432)
		PSYC 420	Mental Illness: Historical & Critical Perspectives
		PSYC 421	Biology and Behavior
		PSYC 425	Family Conflict and the Child
		PSYC 445	Topics in Adolescent Psychology
Mathematics (MATH)			
MATH 308	History of Mathematical Ideas	Sociology (SOCL)	
MATH 512	Contemporary Applications of Math	SOCI 305	Social Class and Inequality
Music (MUSC)		SOCI 407	Sociology of Sex and Gender
		SOCI 415	Race, Class and Gender (cross-



CGSC 205	ANTHROPOLOGY AND HUMAN NATURE (X-LISTED W/ANTH 205)	ENGL 287	INTRO TO SHORT STORY FOR NON-MAJORS
CGSC 320	THEORY OF KNOWLEDGE (X-LISTED W/PHIL 320)	ENGL 288	INTRO TO THE NOVEL FOR NON-MAJORS
CGSC 327	RACE, GENDER, SCIENCE (X-LISTED W/BAMS 327, PHIL 327, WOMS 327)	ENGL 290	STUDIES IN LITERATURE FOR NON-MAJORS
CGSC 421	PHILOSOPHY, BIOLOGY, SOCIETY (X-LISTED PHIL 421)	ENGL 320	THE BIBLE AS LITERATURE
CGSC 450	RECENT TOPICS IN PHILOSOPHY OF MIND (X-LISTED W/PHIL 450)	ENGL 324	SHAKESPEARE
CISC 355	COMPUTERS, ETHICS, AND SOCIETY	ENGL 348	CONTEMPORARY JEWISH-AMERICAN LITERATURE (X-LISTED W/JWST 348)
COMM 486	Multimedia Literacy (x-LISTED W/ EDUC 485)	ENGL 365	STUDIES IN LITERARY GENRES, TYPES, AND MOVEMENTS (X-LISTED W/JWST 365)
CMLT 320	VARYING AUTHORS AND GENRES (X-LISTED W/FLLT 320)	ENGL 380	WOMEN WRITERS
CRJU 335	CRIME AND JUSTICE IN FILM AND LITERATURE	FLLT 202	BIBLICAL & CLASSICAL LITERATURE
CRJU 336	THE DETECTIVE IN FILM AND FICTION	FLLT 316	CLASSICAL MYTHOLOGY: GODS, HEROES, AND MONSTERS
DANC 101	INTRODUCTION TO THE ART OF DANCE	FLLT 319	FRENCH LITERATURE IN TRANSLATION (X-LISTED W/WOMS 319)
DANC 202	BEGINNING BALLET	FLLT 320	VARYING AUTHORS AND GENRES
DANC 203	BEGINNING MODERN DANCE	FLLT 321	ANTI-HEROES IN CHINESE LITERATURE
DANC 204	BEGINNING JAZZ DANCE	FLLT 322	TOPICS: CLASSICAL LITERATURE IN TRANSLATION (X-LISTED W/ CMLT 322)
DANC 206	DANCE IN CULTURE AND SOCIETY	FLLT 326	HISPANIC LITERATURE IN TRANSLATION
DANC 207	DANCE IMPROVISATION	FLLT 327	TOPICS: RUSSIAN LITERATURE IN TRANSLATION
DANC 208	DANCE COMPOSITION I	FLLT 328	TOPICS: JAPANESE LITERATURE IN TRANSLATION
DANC 302	INTERMEDIATE BALLET	FLLT 329	TOPICS: ITALIAN LITERATURE IN TRANSLATION
DANC 303	INTERMEDIATE MODERN DANCE	FLLT 331	INTRODUCTION TO CHINESE FILMS
DANC 304	INTERMEDIATE JAZZ DANCE	FLLT 337	BRAZIL THROUGH FILM
DANC 305	HIP HOP	FLLT 338	LIGHT AND SHADOW: JAPANESE FILMS
DANC 306	MUSICAL THEATRE STYLES	FLLT 380	JAPANESE CULTURE IN TRANSLATION
DANC 307	ETHNIC DANCE STYLES	FLLT 436	POLITICS AND LITERATURE (X-LISTED W/POSC 436, WOMS 436)
DANC 309	REPERTORY	FREN 211	FRENCH READING AND COMPOSITION
DANC 310	METHODS OF TEACHING DANCE	GEOG 203	INTRO TO CULTURAL GEOGRAPHY
DANC 311	DANCE, DRAMA, AND LEARNING	GEOG 345	CULTURAL GEOGRAPHY
DANC 312	THE BODY AND MOTION IN DANCE	GEOG 346	URBAN CULTURAL GEOGRAPHY
ENGL 101	TOOLS OF TEXTUAL ANALYSIS	GREK 301	ANCIENT PROSE: ADVANCED INTERMEDIATE GREEK
ENGL 202	BIBLICAL AND CLASSICAL LITERATURE (X-LISTED W/JWST 202)	GREK 302	ANCIENT POETRY: ADVANCED INTERMEDIATE GREEK
ENGL 207	INTRO TO POETRY		
ENGL 208	INTRO TO DRAMA		
ENGL 209	INTRO TO THE NOVEL		
ENGL 210	INTRO TO SHORT STORY		
ENGL 217	INTRO TO FILM		
ENGL 280	APPROACHES TO LITERATURE		
ENGL 284	SHAKESPEARE FOR NON-MAJORS		
ENGL 285	INTRO TO POETRY FOR NON-MAJORS		
ENGL 286	INTRO TO DRAMA FOR NON-MAJORS		

GRMN 211	GERMAN READING AND COMPOSITION: SHORT FICTION	MUSC 124	ADVANCED STEEL BAND
		MUSC 125	COLLEGIUM MUSICUM
HIST 216	INTRODUCTONTO MATERIAL CULTURE STUDIES	MUSC 126	CHAMBER ORCHESTRA
		MUSC 150	FRESHMAN HONORS PRIVATE STUDY
HLTH 241	ETHICAL ASPECTS OF HEALTH CARE	MUSC 177	CLASS GUITAR I
		MUSC 178	CLASS GUITAR II
ITAL 211	ITALIAN READING AND COMPOSITION: SHORT FICTION	MUSC 179	ORGAN CLASS
ITAL 212	ITALIAN READING AND COMPOSITION: DRAMA AND PROSE	MUSC 181	PRIVATE STUDY FOR APPLIED JAZZ STYLES ANDTECHNIQUES I
		MUSC 182	PRIVATE STUDY FOR APPLIED JAZZ STYLES ANDTECHNIQUES II
JAPN 204	THE ART OF JAPANESE CALLIGRAPHY	MUSC 197	JAZZ HARMONY
		MUSC 209	HISTORY OF SPANISH MUSIC
JWST 202	BIBLICAL AND CLASSICAL LITERATURE (X-LISTED W/ ENGL 202)	MUSC 213	FRENCH MUSICAL CULTURE
JWST 208	INTROTO JEWISH PHILOSOPHY (X-LISTED W/ PHIL 208)	MUSC 281	PRIVATE STUDY FOR APPLIED JAZZ STYLES ANDTECHNIQUES III
JWST 348	CONTEMPORARY JEWISH AMERICAN LITERATURE (X-LISTED W/ ENGL 348)	MUSC 310	CHURCHES AND CATHEDRALS OF LONDON
JWST 350	STUDIES IN JEWISH LITERATURE (X-LISTED W/ENGL 350)	PHIL 100	PHILOSOPHIES OF LIFE
JWST 365	STUDIES IN LITERARY GENRES, TYPES, AND MOVEMENTS (X-LISTED W/ENGL 365)	PHIL 102	INTROTO PHILOSOPHY
		PHIL 105	CRITICAL THINKING
LATN 301	ADVANCED INTERMEDIATE LATIN PROSE	PHIL 125	TOPICS: PHILOSOPHY IN POPULAR CULTURE
LATN 302	ADVANCED INTERMEDIATE LATIN POETRY	PHIL 200	BUSINESS ETHICS
		PHIL 201	SOCIAL AND POLITICAL PHILOSOPHY
MCST 243	AMERICAN DECORATIVE ARTS, 1700-1900 (X-LISTED W/ARTH 243)	PHIL 202	CONTEMPORARY MORAL PROBLEMS
		PHIL 203	ETHICS
MUSC 101	APPRECIATION OF MUSIC	PHIL 204	WORLD RELIGIONS
MUSC 102	APPRECIATION OF MUSIC	PHIL 208	INTROTO JEWISH PHILOSOPHY (X-LISTED W/ JWST 208)
MUSC 103	INTRODUCTIONTO ITALIAN OPERA	PHIL 209	PHILOSOPHY OF RELIGION
MUSC 104	INTRODUCTIONTO OPERA	PHIL 216	INTROTO FEMINISTTHEORY
MUSC 105	FUNDAMENTALS OF MUSIC I	PHIL 241	ETHICAL ISSUES IN HEALTHCARE
MUSC 106	FUNDAMENTALS OF MUSIC II	PHIL 244	PHILOSOPHY OF ART
MUSC 108	UNIVERSITY SINGERS	PHIL 246	PHILOSOPHICAL PERSPECTIVES OF MEDICINE
MUSC 109	SCHOLA CANTORUM	PHIL 306	PHILOSOPHY OF SCIENCE
MUSC 110	CHORALE	PHIL 307	BLACKTHOUGHT AND PHILOSOPHY
MUSC 111	CONCERT CHOIR	PHIL 308	TOPICS IN JEWISH THEOLOGY
MUSC 112	UNIVERSITY STRINGS	PHIL 309	INDIAN RELIGION AND PHILOSOPHY
MUSC 113	MARCHING BAND	PHIL 310	CHINESE RELIGION AND PHILOSOPHY
MUSC 114	SYMPHONIC BAND	PHIL 313	KILLING AND LETTING DIE
MUSC 115	WIND ENSEMBLE	PHIL 315	METAPHYSICS
MUSC 116	JAZZ ENSEMBLE	PHIL 316	TIME TRAVEL
MUSC 117	SYMPHONY ORCHESTRA	PHIL 317	AMERICAN PHILOSOPHY
MUSC 118	PERCUSSION ENSEMBLE	PHIL 320	THEORY OF KNOWLEDGE (X-LISTED W/CGSC 320)
MUSC 120	PEP BAND	PHIL 322	EXISTENTIALISM
MUSC 123	STEEL BAND	PHIL 327	RACE, GENDER, SCIENCE (X-LISTED W/CGSC 327, BAMS 327, WOMS 327)
		PHIL 340	CROSS CULTURAL ENVIRONMENTAL ETHICS
		PHIL 341	ETHICS OF ENGINEERING PROFESSION
		PHIL 344	SCIENCE AND RELIGION

PHIL 389 TOPICS: WOMEN AND HEALTH ISSUES  
 PHIL 421 PHILOSOPHY, BIOLOGY, SOCIETY  
 PHIL 448 ENVIRONMENTAL ETHICS  
 PHIL 450 RECENT TOPICS IN PHILOSOPHY OF MIND (X-LISTED W/CGSC 450)

PLSC 103 LANDSCAPE AND FIELD SKETCHING  
 PLSC 232 BASIC LANDSCAPE DESIGN

POSC 285 CURRENTS IN POLITICAL THEORY  
 POSC 333 CONTEMPORARY POLITICAL IDEOLOGIES  
 POSC 436 POLITICS AND LITERATURE (X-LISTED W/ FLLT 436, WOMS 436)

RUSS 211 RUSSIAN READING AND COMPOSITION: SHORT FICTION

SOCI 220 SOCIOLOGY OF POPULAR CULTURE  
 SOCI 350 SOCIAL INEQUALITY AND FILM

THEA 102 INTRO TO PERFORMANCE  
 THEA 104 INTRO TO THEATRE AND DRAMA  
 THEA 106 THEATRICAL EXPERIENCE ABROAD  
 THEA 200 INTRO TO THEATRE PRODUCTION  
 THEA 202 INTRO TO THEATRE DESIGN  
 THEA 203 INTRO TO COSTUMING  
 THEA 204 INTRO TO VOICE AND SPEECH  
 THEA 205 INTRO TO STAGE MOVEMENT  
 THEA 206 INTRO TO DANCE  
 THEA 226 FUNDAMENTALS OF ACTING I  
 THEA 227 FUNDAMENTALS OF ACTING II  
 THEA 236 FUNDAMENTALS OF JAZZ DANCE  
 THEA 242 PAGE TO STAGE: MAKING THEATRE  
 THEA 300 FUNDAMENTALS OF STAGECRAFT  
 THEA 301 FUNDAMENTALS OF PROPERTIES CONST  
 THEA 302 FUNDAMENTALS OF STAGE LIGHTING  
 THEA 303 FUNDAMENTALS OF SCENE PAINTING  
 THEA 304 FUNDAMENTALS OF AUDIO FOR THEATRE  
 THEA 305 FUNDAMENTALS OF COSTUME CONSTRUCTION  
 THEA 306 FUNDAMENTALS OF PATTERNMAKING  
 THEA 307 FUNDAMENTALS OF DRAPING FOR STAGE  
 THEA 308 FUNDAMENTALS OF COSTUME CRAFTS  
 THEA 309 FUNDAMENTALS OF STAGE MANAGEMENT  
 THEA 310 FUNDAMENTALS OF MASKMAKING  
 THEA 311 FUNDAMENTALS OF SCENE DESIGN  
 THEA 340 AFRICAN AMERICAN THEATRE

THEA 360 FUNDAMENTALS OF ORAL INTERPRETATION  
 THEA 410 FUNDAMENTALS OF DRAMATURGY  
 THEA 420 FUNDAMENTALS OF STAGE DIRECTING

WOMS 205 WOMEN IN THE ARTS AND HUMANITIES  
 WOMS 319 FRENCH LITERATURE IN TRANSLATION (X-LISTED W/ FLLT 319)  
 WOMS 326 HISPANIC LITERATURE IN TRANSLATION (X-LISTED W/ FLLT 326)  
 WOMS 327 RACE, GENDER, SCIENCE (X-LISTED W/CGSC 327, PHIL 327, BAMS 327)  
 WOMS 332 WOMEN, RACE, AND ETHNICITY  
 WOMS 336 FEMINIST CULTURAL STUDIES  
 WOMS 436 POLITICS AND LITERATURE (X-LISTED W/ POSC 436, FLLT 436)

GROUP B: History and Cultural Change

ANTH 101 INTRODUCTION TO SOCIAL AND CULTURAL ANTHROPOLOGY  
 ANTH 105 INTRODUCTION TO HISTORICAL ARCHAEOLOGY  
 ANTH 210 PEOPLES AND CULTURES OF SOUTHEAST ASIA  
 ANTH 211 PEOPLES AND CULTURES OF EAST ASIA  
 ANTH 212 PEOPLES AND CULTURES OF THE MUSLIM WORLD  
 ANTH 225 PEASANT SOCIETIES  
 ANTH 228 PEOPLES AND CULTURES OF THE SOUTHWEST  
 ANTH 261 PEOPLES AND CULTURES OF THE MIDDLE EAST (X-LISTED W/JWST 261)  
 ANTH 265 HIGH CIVILIZATIONS OF THE AMERICAS  
 ANTH 269 EARLY CIVILIZATIONS OF THE OLD WORLD  
 ANTH 275 DELAWARE PREHISTORIC ARCHAEOLOGY  
 ANTH 278 HISTORIC CULTURES OF THE MID-ATLANTIC REGION (X-LISTED HIST 278)  
 ANTH 312 ASIAN WOMEN IN THE GLOBALIZED WORKPLACE  
 ANTH 314 IMMIGRANT ISLAM: THE MUSLIM DIASPORA IN THE WEST  
 ANTH 323 PREHISTORY OF SOUTH AMERICA  
 ANTH 325 PEOPLES OF EUROPE  
 ANTH 330 DEVELOPMENT AND UNDERDEVELOPMENT  
 ANTH 333 PEOPLES OF AFRICA

ANTH 342	ISSUES IN AMERICAN CULTURE: ARCHAEOLOGICAL PERSPECTIVES		STUDIES
ANTH 351	RACE AND ETHNICITY IN LATIN AMERICA	BAMS 134	HISTORY OF AFRICA (X-LISTED W/ HIST 134)
ANTH 360	AMERICAN ANABAPTISTS	BAMS 203	ART, POWER, AND ARCHITECTURE IN AFRICA(X-LISTED WITH ARTH 204)
ANTH 375	PEOPLES AND CULTURES OF MODERN LATIN AMERICA	BAMS 304	HISTORY OF BLACK AMERICANS TO THE CIVIL WAR (X-LISTED W/HIST 325)
ANTH 380	PEOPLES AND CULTURES OF MEXICO AND CENTRAL AMERICA	BAMS 306	HISTORY OF BLACK AMERICANS SINCE THE CIVIL WAR (X-LISTED W/ HIST 326)
ANTH 385	HISTORICAL ARCHAEOLOGY OF AMERICAN BATTLEFIELDS	BAMS 320	SLAVE TESTIMONY AS HISTORICAL ARTIFACT (X-LISTED W/HIST 320)
ARTH 156	ROME: FROM CAESAR TO FELLINI	BAMS 331	HISTORY OF CARIBBEAN I (X-LISTED W/HIST 331)
ARTH 158	RULERS' IMAGES: ANTIQUITY TO THE PRESENT	BAMS 332	HISTORY OF CARIBBEAN II (X-LISTED W/HIST 332)
ARTH 163	ARCHITECTURE IN GLOBAL CONTEXT	BAMS 334	AFRICAN AMERICAN WOMEN'S HISTORY (X-LISTED W/HIST 334, WOMS 334)
ARTH 204	ART, POWER, AND ARCHITECTURE IN AFRICA(X-LISTED WITH BAMS 203)	BAMS 363	HISTORY OF BLACKS IN THE AMERICAN WEST (X-LISTED W/ HIST 333)
ARTH 206	INTRO TO ART AND ARCHITECTURE IN AFRICA	CHEM 410	HISTORY OF CHEMISTRY
ARTH 207	ART OF ANCIENT EGYPT AND THE NEAR EAST	CMLT 330	VARYING AUTHORS, THEMES, AND MOVEMENTS(X-LISTED WOMS 330/\ FLLT 330)
ARTH 208	GREEK AND ROMAN ART	CRJU 312	HISTORY OF CRIME AND CRIMINAL JUSTICE (X-LISTED W/HIST 312)
ARTH 209	EARLY MEDIEVAL ART: 200-1000 AD	CRJU 322	CROWDS, CULTS, AND REVOLUTIONS (X-LISTED W/ SOCI 322)
ARTH 210	LATER MEDIEVAL ART: 1000-1400 AD	CRJU 324	AMERICAN CONSTITUTIONAL HISTORY (X-LISTED W/HIST 324)
ARTH 217	EARLY RENAISSANCE ART	CRJU 351	COMPARATIVE CRIMINAL JUSTICE SYSTEMS
ARTH 218	HIGH RENAISSANCE AND MANNERISM	CRJU 352	INTERNATIONAL CRIMINAL JUSTICE
ARTH 220	ITALIAN RENAISSANCE ARCHITECTURE	CSCC 382	HISTORY OF WESTERN MEDICINE (X-LISTED W/HIST 382)
ARTH 222	BAROQUE ART	ENGL 204	AMERICAN LITERATURE
ARTH 225	EIGHTEENTH CENTURY ART	ENGL 205	BRITISH LITERATURE TO 1660
ARTH 227	MODERN ART I	ENGL 206	BRITISH LITERATURE 1660-PRESENT
ARTH 228	MODERN ART II	ENGL 211	GREAT WRITERS OF THE WESTERN WORLD I
ARTH 230	AMERICAN ART: 1607-1865	ENGL 212	GREAT WRITERS OF THE WESTERN WORLD II
ARTH 231	AMERICAN ART: 1865-PRESENT	ENGL 281	BRITISH LITERATURE TO 1660 FOR NON-MAJORS
ARTH 232	ART OF LATIN AMERICA	ENGL 282	BRITISH LITERATURE 1660-PRESENT FOR NON-MAJORS
ARTH 233	ART AND ARCHITECTURE IN CHINA	ENGL 283	AMERICAN LITERATURE FOR NON-
ARTH 236	ARTS OF THE ISLAMIC WORLD		
ARTH 242	WOMAN AS IMAGE AND IMAGE MAKER (X-LISTED W/ WOMS 242)		
ARTH 245	THE AMERICAN HOME		
ARTH 299	MODERN ARCHITECTURE		
ARTH 303	ART OF THE SPANISH RENAISSANCE		
ARTH 304	NORTHERN BAROQUE ART		
ARTH 305	ITALIAN BAROQUE: METAPHOR & MARVEL		
ARTH 310	ROLE OF THE ARTIST IN SOCIETY		
ARTH 311	RENAISSANCE WOMEN, SOCIETY, AND THE ARTS (X-LISTED W/ WOMS 311)		
ARTH 318	HISTORY OF PHOTOGRAPHY		
ARTH 322	INTRO TO HISTORIC PRESERVATION		
BAMS 110	INTRO TO BLACK AMERICAN		

MAJORS

ENGL 317 FILM HISTORY

ENGL 321 MEDIEVAL LITERATURE AND CULTURE

ENGL 330 THE DETECTIVE IN FILM AND FICTION (X-LISTED W/ CRJU 336)

ENGL 340 AMERICAN LITERATURE TO THE CIVIL WAR

ENGL 341 AMERICAN LITERATURE: CIVIL WAR TO WWII

ENGL 342 AMERICAN LITERATURE SINCE WWII

ENGL 344 AFRICAN AMERICAN LITERATURE I

ENGL 345 AFRICAN AMERICAN LITERATURE II

ENGL 349 INTRODUCTION TO JEWISH SOURCES (X-LISTED W/ JWST 349)

ENGL 350 STUDIES IN JEWISH LITERATURE (X-LISTED W/JWST 350)

FASH 213 TWENTIETH CENTURY DESIGN: ETHNIC INFLUENCES

FASH 214 COSTUME HISTORY BEFORE 1600

FASH 224 CLOTHING DESIGN: 1600-EDWARDIAN

FLLT 330 VARYING AUTHORS, THEMES, AND MOVEMENTS (X-LISTED WOMS 330/ CMLT 330)

FLLT 345 MODERN ISRAEL: CULTURE AND IDENTITY (X-LISTED W/ JWST 345)

FLLT 375 TOPICS: RUSSIAN & SOVIET CULTURE IN TRANSLATION

FREN 207 THE CONTEMPORARY CARIBBEAN WORLD: FRENCH CARIBBEAN PAST AND PRESENT APPROVED

GEOG 226 GEOGRAPHY OF LATIN AMERICA

GEOG 310 SOCIAL GEOGRAPHY

GRMN 208 CONTEMPORARY GERMANY

GRMN 255 GERMANY IN THE NEWS

HEBR 209 CONTEMPORARY ISRAEL THROUGH FILM

HIST 101 WESTERN CIVILIZATION TO 1648

HIST 102 WESTERN CIVILIZATION: 1648 TO THE PRESENT

HIST 103 WORLD HISTORY I

HIST 104 WORLD HISTORY II

HIST 130 ISLAMIC NEAR EAST: 600-1500

HIST 131 ISLAMIC NEAR EAST: 1500-PRESENT

HIST 134 HISTORY OF AFRICA (X-LISTED W/ BAMS 134)

HIST 135 INTRO TO LATIN AMERICAN HISTORY

HIST 136 TOPICS IN EAST ASIA IN FILM (1-CREDIT COURSE)

HIST 137 EAST ASIAN CIVILIZATION: CHINA

HIST 138 EAST ASIAN CIVILIZATION: JAPAN

HIST 200 HISTORY AND GOVERNMENT OF DELAWARE

HIST 201 INTRODUCTION TO GLOBAL ISLAM (X-LISTED WITH POSC 201)

HIST 205 US HISTORY I

HIST 206 US HISTORY II

HIST 210 INTRODUCTION TO MILITARY HISTORY

HIST 220 AMERICAN CIVIL RIGHTS MOVEMENT

HIST 221 FILM AND AMERICAN SOCIETY

HIST 241 HISTORY OF CHRISTIANITY TO 1300

HIST 243 ANCIENT RELIGION AND CIVILIZATION

HIST 245 MEDIEVAL KINGS AND QUEENS

HIST 254 JEWISH HOLOCAUST: 1933-1945 (X-LISTED W/JWST 254)

HIST 270 HISTORY OF MODERN ASIA

HIST 278 HISTORIC CULTURES OF THE MID-ATLANTIC REGION (x-listed with ANTH 278)

HIST 291 WOMEN'S HISTORY THROUGH FILM (X-LISTED WITH WOMS 291)

HIST 300 WOMEN IN AMERICAN HISTORY (X-LISTED W/ WOMS 300)

HIST 302 THE WORLD IN OUR TIME

HIST 307 THE US IN THE EARLY NATIONAL PERIOD

HIST 308 THE US IN THE ANTEBELLUM PERIOD

HIST 309 US BUSINESS AND POLITICAL ECONOMY

HIST 310 POSTWAR AMERICA I: 1945-1963

HIST 311 POSTWAR AMERICA II: 1963-PRESENT

HIST 312 HISTORY OF CRIME AND CRIMINAL JUSTICE (X-LISTED W/ CRJU 312)

HIST 313 THE US, 1877-1914

HIST 314 THE US, 1914-1945

HIST 317 BUYING IN: CONSUMER CAPITALISM IN THE US

HIST 318 COLONIAL AMERICA

HIST 319 REVOLUTIONARY AMERICA

HIST 320 SLAVE TESTIMONY AS HISTORICAL ARTIFACT (X-LISTED W/ BAMS 320)

HIST 321 CIVIL WAR AND RECONSTRUCTION

HIST 323 THE OLD SOUTH

HIST 324 AMERICAN CONSTITUTIONAL HISTORY (X-LISTED W/ CRJU 324)

HIST 325 HISTORY OF BLACK AMERICA TO THE CIVIL WAR (X-LISTED W/ BAMS 325)

HIST 326 HISTORY OF BLACK AMERICA SINCE THE CIVIL WAR (X-LISTED W/ BAMS 326)

HIST 328 AMERICAN INDUSTRIAL SOCIETY FROM 1815-PRESENT

HIST 330 PEASANTS AND REVOLUTION IN AFRICA

HIST 331 HISTORY OF CARIBBEAN I (X-LISTED

- W/ BAMS 331)
- HIST 332 HISTORY OF CARIBBEAN II (X-LISTED W/ BAMS 332)
- HIST 333 HISTORY OF BLACKS IN THE AMERICAN WEST (X-LISTED W/ BAMS 363)
- HIST 334 AFRICAN AMERICAN WOMEN'S HISTORY (X-LISTED W/ BAMS/WOMS 334)
- HIST 338 GREEK-ROMAN SPORT RECREATION
- HIST 340 ANCIENT NEAR EAST AND GREECE
- HIST 341 ANCIENT ROME
- HIST 342 BARBARIAN EUROPE
- HIST 343 MEDIEVAL EUROPE: 1050-1350
- HIST 344 RENAISSANCE EUROPE
- HIST 345 REFORMATION EUROPE
- HIST 346 AGE OF LOUIS XIV
- HIST 348 HISTORY OF SPAIN: 1479-PRESENT
- HIST 349 MODERN LATIN AMERICA: 1800-PRESENT
- HIST 351 EUROPE IN CRISIS: 1919-1945
- HIST 352 CONTEMPORARY EUROPEAN SOCIETY
- HIST 353 MODERN GERMANY: 1770-1919
- HIST 354 GERMANY IN THE 20TH CENTURY: 1914-PRESENT
- HIST 355 EARLY MODERN INTELLECTUAL HISTORY
- HIST 356 MODERN EUROPEAN INTELLECTUAL HISTORY
- HIST 357 THE EUROPEAN CITY
- HIST 359 SOVIET UNION: 1917-1990
- HIST 361 20TH CENTURY FRANCE
- HIST 368 MODERN CHINA: 1600-1920
- HIST 369 CHINA SINCE 1900
- HIST 370 HISTORY OF MODERN JAPAN
- HIST 371 POSTWAR JAPAN
- HIST 372 JAPAN'S GLOBAL POP CULTURE
- HIST 373 MODERN IRELAND: 1660-PRESENT
- HIST 374 HISTORY OF ENGLAND TO 1715
- HIST 375 BRITAIN SINCE 1714
- HIST 376 ENGLAND: THE FORMATIVE YEARS, 1648-1798
- HIST 377 RADICALISM AND REVOLUTION: ISLAMIC MOVEMENT/MODERN MIDDLE EAST
- HIST 378 NATIONALISM IN THE MODERN MIDDLE EAST
- HIST 380 HISTORY OF THE ARAB-ISRAELI CONFLICT - (x-listd w/JWST 381)
- HIST 381 ISLAM AND THE WEST: THE HISTORY OF MUTUAL PERCEPTIONS
- HIST 382 HISTORY OF WESTERN MEDICINE (X-LISTED W/ CSCC 382)
- HIST 384 EARLY IRISH HISTORY: FROM STRONGBOW TO CROMWELL, 1169-1659
- HIST 386 ASIAN AMERICA: CULTURE AND HISTORY
- HIST 387 HISTORY OF SEXUALITY IN THE US
- HIST 388 AMERICAN INDIAN HISTORY
- HIST 389 THE AMERICAN WEST
- HIST 390 AMERICAN INDIANS: THE SOUTHWEST
- HIST 393 HISTORY OF MODERN VIETNAM
- HIST 394 AFRICA SINCE 1960
- HIST 395 PAN-AFRICANISM
- HIST 397 HISTORY OF SOUTH AFRICA
- HIST 403 HISTORY, PHILOSOPHY, AND FUNCTION OF MUSEUMS (X-LISTED W/MSST 403)
- HIST 408 PUBLIC HISTORY: RESOURCES, RESEARCH, AND PRACTICE
- HIST 431 CARIBBEAN PLANTATION SOCIETY AND ECONOMY
- HIST 432 POST EMANCIPATION CARIBBEAN SOCIETIES
- ITAL 208 ITALY: PAST & PRESENT
- JWST 254 JEWISH HOLOCAUST (X-LISTED W/ HIST 254)
- JWST 261 PEOPLES AND CULTURES OF THE MIDDLE EAST (X-LISTED W/ ANTH 261)
- JWST 345 MODERN ISRAEL (X-LISTED W/ FLLT 345)
- JWST 349 INTRODUCTION TO JEWISH SOURCES (X-LISTED W/ ENGL 349)
- JWST 350 STUDIES IN JEWISH LITERATURE (X-LISTED WITH ENGL 350)
- JWST 381 HISTORY OF THE ARAB-ISRAELI CONFLICT (X-LISTED W/ HIST 380)
- LING 401 HISTORICAL LINGUISTICS
- MATH 308 HISTORICAL DEVELOPMENT OF MATHEMATICAL CONCEPTS AND IDEAS
- MSST 403 HISTORY, PHILOSOPHY, AND FUNCTION OF MUSEUMS (X-LISTED W/HIST 403)
- MUSC 107 HISTORY OF ROCK
- MUSC 205 MUSIC OF THE WORLD
- MUSC 206 MUSIC OF CHINA, KOREA AND JAPAN
- MUSC 207 HISTORY OF JAZZ
- MUSC 210 MUSIC OF BRITAIN
- MUSC 212 HISTORY OF LITURGY AND HYMNS
- MUSC 302 WOMEN IN MUSIC: AN ALTERNATE SURVEY (X-LISTED W/WOMS 302)
- MUSC 345 HISTORY OF THEATRE: AMERICAN MUSICAL THEATRE

PHIL 101 GREAT WESTERN PHILOSOPHERS  
 PHIL 301 ANCIENT PHILOSOPHY  
 PHIL 303 MODERN PHILOSOPHY  
 PHIL 304 19TH CENTURY PHILOSOPHY  
 PHIL 305 20TH CENTURY PHILOSOPHY  
 PHIL 311 EARLY MEDIEVAL PHILOSOPHY  
 PHIL 312 LATE MEDIEVAL PHILOSOPHY  
  
 PHYS 480 HISTORY OF PHYSICS  
  
 PLSC 100 PLANTS AND HUMAN CULTURE  
 PLSC 202 HISTORY OF LANDSCAPE DESIGN  
  
 PORT 207 BRAZIL: PAST & PRESENT  
  
 POSC 201 INTRODUCTION TO GLOBAL ISLAM  
 (X-LISTED WITH HIST 201)  
 POSC 211 INTRODUCTION TO POLITICS IN  
 DEVELOPING COUNTRIES  
 POSC 311 POLITICS OF DEVELOPING NATIONS  
 POSC 377 ARAB-ISRAELI POLITICS (X-LISTED  
 WITH JWST 377)  
  
 PSYC 415 HISTORY OF PSYCHOLOGY  
 PSYC 420 MENTAL ILLNESS  
  
 SOCI 322 CROWDS, CULTS, AND  
 REVOLUTIONS (X-LISTED W/CRJU  
 322)  
  
 SPAN 207 CONTEMPORARY LATIN AMERICA I  
 SPAN 208 SPAIN: PAST & PRESENT  
 SPAN 307 CONTEMPORARY LATIN AMERICA II  
 SPAN 325 SPANISH CIVILIZATION AND  
 CULTURE  
 SPAN 326 LATIN AMERICAN CIVILIZATION AND  
 CULTURE  
  
 THEA 241 WESTERN THEATRE: LIVE ON STAGE  
 THEA 341 THEATRE/DRAMA: CLASSIC/  
 MEDIEVAL  
 THEA 342 THEATRE/DRAMA:  
 RENAISSANCE-1700  
 THEA 343 THEATRE/DRAMA: 1700-1900  
 THEA 344 THEATRE/DRAMA: 1900-PRESENT  
 THEA 345 THEATRE/DRAMA: AMERICAN  
 MUSICAL THEATRE  
  
 WOMS 200 CULTURAL INTRODUCTION TO  
 SEXUALITIES AND GENDER  
 STUDIES  
 WOMS 202 WOMEN'S STUDIES IN GLOBAL  
 CONTEXT  
 WOMS 210 WOMEN AND RELIGION  
 WOMS 242 WOMAN AS IMAGE AND  
 IMAGEMAKER (X-LISTED W/ ARTH  
 242)

WOMS 260 WOMEN: CULTURAL  
 REPRESENTATIONS  
 WOMS 291 WOMEN'S HISTORY THROUGH  
 FILM (1 CREDIT COURSE) X-LISTED  
 W/HIST 291  
 WOMS 300 WOMEN IN AMERICAN HISTORY  
 (X-LISTED W/ HIST 300)  
 WOMS 302 WOMEN IN MUSIC: AN ALTERNATE  
 SURVEY (X-LISTED W/MUSC 302)  
 WOMS 311 RENAISSANCE WOMEN, SOCIETY,  
 AND THE ARTS (X-LISTED W/ ARTH  
 311)  
 WOMS 324 FEMINISM AND SEXUALITIES  
 WOMS 330 VARYING AUTHORS, THEMES, AND  
 MOVEMENTS (X-LISTED CMLT330/  
 FLLT 330)  
 WOMS 334 AFRICAN AMERICAN WOMEN'S  
 HISTORY (X-LISTED W/HIST 334,  
 BAMS 334)

GROUP C: Social and Behavioral Sciences

AGED 180 INTRODUCTION TO AGRICULTURAL  
 EDUCATION  
 AGED 280 FFA AND SUPERVISED  
 AGRICULTURAL EXPERIENCE  
 AGED 425/625 AGRICULTURAL LEADERSHIP:  
 TOLLS AND TECHNIQUES  
 AGED 430/630 WORKING WITH ADVISORY  
 COUNCILS  
  
 ANTH 103 INTRODUCTION TO PREHISTORIC  
 ARCHAEOLOGY  
 ANTH 218 SOLVING ARCHAEOLOGICAL  
 MYSTERIES  
 ANTH 222 TECHNOLOGY AND CULTURE  
 ANTH 223 FOOD, GENDER AND CULTURE  
 ANTH 229 INDIANS OF NORTH AMERICA  
 ANTH 230 PEOPLES OF THE WORLD  
 ANTH 235 ANTHROPOLOGY OF FOOD  
 ANTH 236 ANTHROPOLOGY OF SPORT  
 ANTH 245 CONTEMPORARY NATIVE  
 AMERICAN CULTURE ISSUES  
 ANTH 255 APPLIED ANTHROPOLOGY  
 ANTH 259 HUNTING SOCIETIES  
 ANTH 310 ASIAN WOMEN'S LIVES  
 ANTH 311 ANTHROPOLOGY OF TOURISM  
 ANTH 313 ANTHROPOLOGY OF ELITES: THE  
 NEW RICH IN ASIA  
 ANTH 316 ISLAM AND GENDER  
 ANTH 318 TRIBAL LIFEWAYS  
 ANTH 320 PREHISTORY OF NORTH AMERICA  
 ANTH 324 OLD WORLD ARCHAEOLOGY  
 ANTH 329 THE ARCHAEOLOGY OF  
 AGRICULTURE  
 ANTH 337 SOUTH AMERICAN INDIANS  
 ANTH 363 WOMEN IN CROSS-CULTURAL

	PERSPECTIVE	CRJU 302	SOCIAL DEVIANCE (X-LISTED W/ SOCI 302)
ANTH 370	CULTURE OF FOOD PRODUCTION AND ECONOMIC DEVELOPMENT	CRJU 303	JUVENILE DELINQUENCY (X-LISTED W/SOCI 303)
ANTH 379	HISTORICAL ARCHAEOLOGY OF EASTERN U.S. (X-LISTED W/HIST 379)	CRJU 304	CRIMINOLOGY (X-LISTED W/SOCI 304)
ANTH 382	ANTHROPOLOGY AND BUSINESS	CRJU 345	SOCIOLOGY OF LAW (X-LISTED W/ SOCI 345)
ANTH 401	THE IDEA OF RACE	CRJU 409	DOMESTIC VIOLENCE SERVICES (X-LISTED W/HDFS 409)
ANTH 463	HISTORICAL ARCHAEOLOGY AND THE PUBLIC (X-LISTED W/HIST 463)		
ART 215	SEEING AND BEING	ECON 100	ECONOMIC ISSUES AND POLICIES
BAMS 205	CONTEMPORARY AFRO-AMERICAN ISSUES	ECON 151	INTROTO MICROECONOMICS: PRICES AND MARKETS
BAMS 350	RACE AND WORK IN THE US	ECON 152	INTROTO MACROECONOMICS: THE NATL ECONOMY
BAMS 381	UNDERSTANDING BLACK MEN IN THE STREETS AND IN PRISON	ECON 251	MANAGERIAL ECONOMICS
BUAD 301	INTRODUCTION TO MARKETING	ECON 300	INTERMEDIATE MICROECONOMIC THEORY
BUAD 309	MANAGEMENT AND ORGANIZATIONAL BEHAVIOR	ECON 301	QUANTITATIVE MICROECONOMIC THEORY
CGSC 102	LANGUAGE, MIND AND SOCIETY (X-LISTED W/LING 102)	ECON 303	INTERMEDIATE MACROECONOMIC THEORY
CGSC 170	INTRO TO COGNITIVE SCIENCE	ECON 311	ECONOMICS OF DEVELOPING COUNTRIES
CGSC 330	PHILOSOPHY OF MIND (X-LISTED WITH PHIL 330)	ECON 332	ECONOMICS OF GOVERNMENT SPENDING AND TAXATION
CGSC 404	ANIMAL MINDS (X-LISTED W/PHIL 404)	ECON 343	ENVIRONMENTAL ECONOMICS (X-LISTED W/FREC 343)
CGSC 410	EMBODIED COGNITION	ECON 350	ECONOMICS OF ENTREPRENEURSHIP
CGSC 421	PHILOSOPHY, BIOLOGY, SOCIETY (X-LISTED W/PHIL 421)	ECON 360	GOVERNMENT REGULATION OF BUSINESS
CGSC 471	DISCOVERING HUMAN LANGUAGE (X-LISTED W/LING 471)	ECON 381	ECONOMICS OF HUMAN RESOURCES
COMM 200	TOPICS IN HUMAN COMMUNICATION SYSTEMS	ECON 385	WOMEN AND THE ECONOMY
COMM 204	GENDER AND COMMUNICATION	ECON 390	ECONOMICS OF HEALTHCARE
COMM 245	MASS COMMUNICATION AND CULTURE COMMUNICATION	ECON 393	URBAN ECONOMICS
COMM 256	PRINCIPLES OF COMMUNICATION THEORY	EDUC 459	URBAN SCHOOLS IN URBAN LANDSCAPES
COMM 305	TOPICS IN COMMUNICATION AND POLITICS	ENEP 250	INTRODUCTION TO ENERGY POLICY
COMM 330	COMMUNICATION AND INTERPERSONAL BEHAVIOR	ENEP 410	POLITICAL ECONOMY OF ENVIRONMENT
COMM 341	THEORIES OF INTERPERSONAL COMMUNICATION	ENEP 424	SUSTAINABLE ENERGY POLICY AND PLANNING
COMM 370	THEORIES OF MASS COMMUNICATION	ENEP 425	ENERGY POLICY AND ADMINISTRATION
CRJU 110	INTRODUCTION TO CRIMINAL JUSTICE	ENGL 390	ENGLISH LINGUISTICS
CRJU 201	PROBLEMS OF LAW ENFORCEMENT	ENGL 394	ENGLISH LANGUAGE: RHETORICAL AND CLUTURAL CONTEXTS
CRJU 202	PROBLEMS OF CRIMINAL JUDICIARY	FLLT 203	LANGUAGES OF THE WORLD (X-LISTED W/LING 203)
CRJU 203	PROBLEMS OF CORRECTIONS		

FREC 100	SUSTAINABLE DEVELOPMENT	(X-LISTED W/CRJU 409)
FREC 150	ECONOMICS OF AGRICULTURE AND NATURAL RESOURCES	HDFS 410 THE HOSPITALIZED CHILD
FREC 212	FOOD RETAILING AND CONSUMER BEHAVIOR	HDFS 427 PARENTING THROUGH THE LIFESPAN
FREC 305	MANAGEMENT AND LEADERSHIP DEVELOPMENT	HESC 214 WELLNESS: A WAY OF LIFE
FREC 316	ECONOMICS OF BIOTECHNOLOGY AND NEW TECHNOLOGIES	HESC 226 SPORT, RECREATION, AND LEISURE ABROAD
FREC 343	ENVIRONMENTAL ECONOMICS (X-LISTED W/ECON 343)	HESC 335 HEALTH AND AGING
FREC 406	AGRICULTURAL AND NATURAL RESOURCE POLICY	HESC 401 FOUNDATIONS OF HUMAN SEXUALITY (X-LISTED W/ HDFS 401 AND WOMS 401)
FREC 409	RESEARCH METHODS II	HESC 484 WOMEN IN SPORTS
FREC 410	INTERNATIONAL AGRICULTURAL TRADE AND MARKETING	HIST 329 INTERNATIONAL MIGRATION (X-LISTED W/POSC 329)
FREC 450	TOPICS IN ENVIRONMENTAL LAW (X-LISTED W/ LEST 450)	HIST 379 HISTORICAL ARCHAEOLOGY OF EASTERN U.S. (X-LISTED W/ANTH 379)
FREN 308	CONTEMPORARY FRANCE II	HIST 463 HISTORICAL ARCHAEOLOGY AND THE PUBLIC (X-LISTED W/ANTH 463)
FREN 403	STRUCTURE OF FRENCH	HLPR 211 INTRODUCTION TO PUBLIC HEALTH
GEOG 102	HUMAN GEOGRAPHY	HLPR 233 INTRODUCTION TO GLOBAL HEALTH
GEOG 120	WORLD REGIONAL GEOGRAPHY	JAPN 202 (PROPOSED)-ADVANCED INTERMEDIATE JAPANESE II
GEOG 210	ECONOMIC GEOGRAPHY	JAPN 205 JAPANESE CONVERSATION
GEOG 235	CONSERVATION OF NATURAL RESOURCES	JAPN 206 CULTURE THROUGH CONVERSATION
GEOG 236	CONSERVATION: GLOBAL ISSUES	JAPN 209 INTERMEDIATE SITUATIONAL JAPANESE
GEOG 240	ENVIRONMENT AND BEHAVIOR	JAPN 305 JAPANESE CONVERSATION AND COMPOSITION
GEOG 315	NEWARK, DELAWARE: PEOPLE, POLITICS, AND PLACE	JWST 360 SOCIOLOGY OF RELIGION (X-LISTED W/ SOCI 360)
GEOG 320	WATER AND SOCIETY	LEAD 100 LEADERSHIP, INTEGRITY, AND CHANGE
GEOG 325	URBAN GEOGRAPHY	LEAD 200 THE LEADERSHIP CHALLENGE
GEOG 329	INTERNATIONAL MIGRATION (X-LISTED W/ POSC 329, SOCI 329)	LEAD 300 LEADERSHIP, CREATIVITY, AND INNOVATION
HDFS 201	LIFE SPAN DEVELOPMENT	LEST450 TOPICS IN ENVIRONMENTAL LAW (X-LISTED W/ FREC 450)
HDFS 202	FOUNDATIONS OF FAMILY STUDIES	LING 101 INTRO TO LINGUISTICS
HDFS 220	CHILD DEVELOPMENT I	LING 102 LANGUAGE, MIND AND SOCIETY (X-LISTED W/CGSC 102)
HDFS 221	CHILD DEVELOPMENT II	LING 203 LANGUAGES OF THE WORLD (X-LISTED W/FLLT 203)
HDFS 230	FAMILIES AND THEIR COMMUNITIES	LING 222 LANGUAGE AND GENDER
HDFS 270	FAMILIES AND DEVELOPMENTAL DISABILITIES (X-LIST W/ SOCI 270)	LING 265 STUDIES IN LANGUAGE
HDFS 271	ALCOHOL ISSUES AND COLLEGE STUDENTS	LING 390 ENGLISH LINGUISTICS
HDFS 329	ADOLESCENT DEVELOPMENT	LING 404 STRUCTURES OF LANGUAGE
HDFS 330	MENTOR AND HELPING RELATIONSHIPS	LING 471 DISCOVERING HUMAN LANGUAGE (X-LISTED W/CGSC 471)
HDFS 331	YOUTH AT RISK	MUSC 309 PATTERNS OF PATRONAGE
HDFS 333	DEVELOPMENT OF HUMAN RELATIONSHIPS	
HDFS 339	ADULT DEVELOPMENT AND AGING	
HDFS 401	FOUNDATIONS OF HUMAN SEXUALITY (X-LISTED W/ HESC 401 AND WOMS 401)	
HDFS 405	AGING AND THE FAMILY	
HDFS 409	DOMESTIC VIOLENCE SERVICES	

NTDT 301	CULTURAL PERSPECTIVES ON FOOD AND NUTRITION		
NTDT 455	ISSUES IN INTERNATIONAL NUTRITION		
PHIL 330	PHILOSOPHY OF MIND (X-LISTED W/ CGSC 330)		
PHIL 404	ANIMAL MINDS (X-LISTED W/CGSC 404)		
PHIL 421	PHILOSOPHY, BIOLOGY, SOCIETY (X-LISTED W/CGSC 421)		
POSC 150	AMERICAN POLITICAL SYSTEM		
POSC 211	INTRODUCTION TO POLITICS IN DEVELOPING COUNTRIES		
POSC 220	INTRODUCTION TO PUBLIC POLICY		
POSC 240	INTRODUCTION TO INTERNATIONAL RELATIONS		
POSC 270	COMPARATIVE POLITICS		
POSC 329	INTERNATIONAL MIGRATION (X-LISTED W/ GEOG 329, SOCI 329)		
POSC 343	SOCIETY, POLITICS AND HEALTHCARE (X-LISTED W/SOCI 343)		
PSYC 100	GENERAL PSYCHOLOGY		
PSYC 105	POSITIVE PSYCHOLOGY		
PSYC 301	PERSONALITY		
PSYC 303	INTRO TO SOCIAL PSYCHOLOGY		
PSYC 325	CHILD PSYCHOLOGY		
PSYC 332	HEALTH PSYCHOLOGY		
PSYC 333	PSYCHOLOGY OF WOMEN		
PSYC 334	ABNORMAL PSYCHOLOGY		
SOCI 201	INTRODUCTION TO SOCIOLOGY		
SOCI 204	URBAN COMMUNITIES		
SOCI 206	WOMEN AND WORK		
SOCI 209	SOCIAL PROBLEMS		
SOCI 213	MEN AND WOMEN IN AMERICAN SOCIETY		
SOCI 215	RACE IN SOCIETY		
SOCI 270	FAMILIES AND DEVELOPMENTAL DISABILITIES (X-LIST W/ HDFS 270)		
SOCI 302	SOCIAL DEVIANCE (X-LISTED W/ CRJU 302)		
SOCI 303	JUVENILE DELINQUENCY (X-LISTED W/CRJU 303)		
SOCI 304	CRIMINOLOGY (X-LISTED W/CRJU 304)		
SOCI 305	SOCIAL CLASS AND INEQUALITY		
SOCI 308	THE FAMILY		
SOCI 311	SOCIOLOGY OF HEALTH AND ILLNESS		
SOCI 325	DISASTERS AND SOCIETY		
SOCI 328	SOCIOLOGY OF WORK		
SOCI 329	INTERNATIONAL MIGRATION (X-LISTED W/ GEOG 329, POSC 329)		
SOCI 331	WORLD POPULATION: PROFILES AND TRENDS		
SOCI 343	SOCIETY, POLITICS AND HEALTHCARE (X-LISTED W/POSC 343)		
SOCI 345	SOCIOLOGY OF LAW (X-LISTED W/ CRJU 345)		
SOCI 346	AGING AND SOCIETY		
SOCI 360	SOCIOLOGY OF RELIGION (X-LISTED W/JWST 360)		
SOCI 361	RACIAL INEQUALITY		
SOCI 471	DISASTERS, VULNERABILITY, AND DEVELOPMENT		
UAPP 110	CHANGING THE WORLD: THE ROLE OF PUBLIC POLICY		
UAPP 225	CRAFTING PUBLIC POLICY		
WOMS 201	INTRODUCTION TO WOMEN'S STUDIES		
WOMS 206	WOMEN AND WORK		
WOMS 211	MEN, CONFLICT AND SOCIAL CHANGE		
WOMS 212	MOTHERHOOD IN CULTURE AND POLITICS		
WOMS 233	WOMEN, BIOLOGY AND MEDICINE		
WOMS 240	WOMEN AND VIOLENCE		
WOMS 301	GAY AND LESBIAN FILM		
WOMS 304	ADOLESCENT GIRLS IN MULTICULTURAL PERSPECTIVE		
WOMS 363	WOMEN IN CROSS-CULTURAL PERSPECTIVE		
WOMS 389	TOPICS: WOMEN AND HEALTH ISSUES		
WOMS 401	FOUNDATIONS OF HUMAN SEXUALITY (X-LISTED W/ HESC 401 AND HDFS 401)		
	GROUP D: Mathematics, Natural Sciences and Technology		
	*LABORATORY COURSE		
ANFS 101	INTRO TO ANIMAL SCIENCE		
ANFS 102	FOOD FOR THOUGHT		
ANFS 230	FOODBORNE DISEASES: INVESTIGATING OUTBREAKS		
ANFS 241	INTRO TO EQUINE NUTRITION		
ANFS 261	PRINCIPLES OF COMPANION ANIMAL NUTRITION		
ANFS 305	FOOD SCIENCE		
ANTH 102	INTRODUCTION TO BIOLOGICAL ANTHROPOLOGY		
ANTH 104	INTRODUCTION TO ARCHAEOLOGY AND BIOLOGICAL ANTHROPOLOGY		
ANTH 202	HUMAN EVOLUTION AND THE FOSSIL RECORD (X-LISTED W/CGSC 202)		
ANTH 300	PRIMATOLOGY		

ANTH 305 EVOLUTION OF HUMAN SEX ROLES AND REPRODUCTION  
 ANTH 404 HUMAN OSTEOLOGY  
 ANTH 424 INTRODUCTION TO ARCHAEOLOGICAL FIELD METHODS  
  
 ARTC 210\* SCIENCE OF COLOR PHENOMENA  
  
 ARTH 205 SCIENCE AND THE DETECTION OF ART FORGERIES (X-LISTED W/ MSST 205)  
  
 BISC 103 PRINCIPLES OF BIOLOGY  
 BISC 104\* PRINCIPLES OF BIOLOGY W/ LAB  
 BISC 105 HUMAN HEREDITY AND DEVELOPMENT  
 BISC 106 ELEMENTARY HUMAN PHYSIOLOGY  
 BISC 107 ELEMENTARY EVOLUTION ECOLOGY  
 BISC 110 VIRUSES, GENES, AND CANCER  
 BISC 113\* GENERAL BIOLOGY LAB (BISC 103/113 FULFILLS LAB REQUIREMENT)  
 BISC 115\* HUMAN HEREDITY AND DEVELOPMENT LAB (BISC 105/115 FULFILLS LAB REQUIREMENT)  
 BISC 116 \* ELEMENTARY HUMAN PHYSIOLOGY LAB\* (BISC 106/116 FULFILLS LAB REQUIREMENT)  
 BISC 117\* ELEMENTARY EVOLUTION ECOLOGY LAB (BISC 107/117 FULFILLS LAB REQUIREMENT)  
 BISC 127\* ENVIRONMENT AND CULTURES IN CONFLICT  
 BISC 152 BIOLOGY OF HUMAN SEXUALITY  
 BISC 171 MICROBIOLOGY IN MODERN SOCIEY  
 BISC 195 BIOLOGICAL EVOLUTION  
 BISC 207\* INTRO BIOLOGY I  
  
 BREG 103 LAND AND WATER MANAGEMENT  
  
 CGSC 202 HUMAN EVOLUTION AND THE FOSSIL RECORD (X-LISTED W/ ANTH 202)  
  
 CHEM 100 CHEMISTRY AND THE HUMAN ENVIRONMENT  
 CHEM 101\* GENERAL CHEMISTRY  
 CHEM 102\* GENERAL CHEMISTRY  
 CHEM 103\* GENERAL CHEMISTRY  
 CHEM 104\* GENERAL CHEMISTRY  
 CHEM 105 GENERAL CHEMISTRY  
 CHEM 111 GENERAL CHEMISTRY  
 CHEM 112 GENERAL CHEMISTRY  
  
 CISC 101 COMPUTER & INFORMATION SYSTEMS  
 CISC 103 INTRO TO COMPUTER SCIENCE W/ WEB APPLICATIONS  
  
 CISC 106 GENERAL COMPUTER SCIENCE FOR ENGINEERS  
 CISC 108 INTRO TO COMPUTER SCIENCE I  
 CISC 181 INTRO TO COMPUTER SCIENCE II  
  
 ENWC 201 WILDLIFE CONSERVATION AND ECOLOGY  
 ENCW 205 ELEMENTS OF ENTOMOLOGY  
  
 FREC 240 QUANTITATIVE METHODS IN AGRICULTURAL ECONOMICS  
 FREC 408 STATISTICAL RESEARCH METHODS  
  
 GEOG 101 PHYSICAL GEOGRAPHY: CLIMATIC PROCESSES  
 GEOG 106 PHYSICAL GEOGRAPHY: LAND SURFACE PROCESSES  
 GEOG 111\* CLIMATIC PROCESSES LAB (GEOG101/111 FULFILLS LAB REQUIREMENT)  
 GEOG 152\* CLIMATE AND LIFE  
 GEOG 220 METEOROLOGY  
 GEOG 271 INTRO TO GEOGRAPHIC DATA ANALYSIS  
  
 GEOL 105/115\* GEOLOGIC HAZARDS W/ LAB  
 GEOL 105 GEOLOGIC HAZARDS AND THEIR HUMAN IMPACT  
 GEOL 107\* GENERAL GEOLOGY  
 GEOL 108 VOLCANOES AND EARTHQUAKES  
 GEOL 109 PLANETS, ASTEROIDS, AND IMPACTS  
 GEOL 110 EARTH HISTORY-EVOLUTION, EXTINCTION, AND THE GEOLOGIC RECORD  
 GEOL 111 THE GEOLOGY OF DELAWARE AND ITS NEIGHBORS  
 GEOL 112 EARTH RESOURCES AND PUBLIC POLICY  
 GEOL 113 EARTH SCIENCE  
 GEOL 120 LIFE IS A BEACH  
 LING 451 LOGICAL STRUCTURES IN LANGUAGE  
  
 MAST 200 THE OCEANS  
  
 MATH 201 INTRO TO STATISTICAL METHODS  
 MATH 210 DISCRETE MATHEMATICS I  
 MATH 221 CALCULUS I  
 MATH 222 CALCULUS II  
 MATH 230 FINITE MATHEMATICS WITH APPLICATIONS  
 MATH 241 ANALYTIC GEOMETRY AND CALCULUS A  
 MATH 242 ANALYTIC GEOMETRY AND CALCULUS B

MEDT 200 THE LANGUAGE OF MEDICINE  
 MEDT 220 FORENSIC SCIENCE

MSST 205 SCIENCE AND THE DETECTION OF  
 ART FORGERIES (X-LISTED W/ ARTH  
 205)

NSCI 320 INTRO TO NEUROSCIENCE (X-LISTED  
 W/ PSYC 320)

NTDT 200 NUTRITION CONCEPTS

PHIL 205 LOGIC  
 PHIL 207 SCIENTIFIC REASONING  
 PHIL 211 BASIC DECISION THEORY

PHYS 133\* INTRODUCTION TO ASTRONOMY  
 PHYS 141 LIGHT, LASERS, CAMERAS,  
 PERCEPTION  
 PHYS 143 ENERGY TECHNOLOGY AND  
 SOCIETY  
 PHYS 144 CONCEPTS OF THE UNIVERSE  
 PHYS 145 BLACK HOLES AND COSMIC  
 EVOLUTION  
 PHYS 146 QUARKS, GLUONS, AND THE BIG  
 BANG: PARTICLES AND COSMOLOGY  
 PHYS 201\* INTRODUCTORY PHYSICS I  
 PHYS 202\* INTRODUCTORY PHYSICS II  
 PHYS 207\* FUNDAMENTALS OF PHYSICS I  
 PHYS 208\* FUNDAMENTALS OF PHYSICS II

PLSC 101\* BOTANY I  
 PLSC 140 PEOPLE AND PLANTS: FEAST OR  
 FAMINE  
 PLSC 204 INTRO TO SOIL SCIENCE  
 PLSC 212 WOODY LANDSCAPE PLANTS  
 PLSC 214 INDIGENOUS WOODY PLANTS OF  
 THE EASTERN US

PSYC 314 BRAIN AND BEHAVIOR  
 PSYC 320 INTRO TO NEUROSCIENCE (X-LISTED  
 W/ NSCI 320)

SCEN 101\* PHYSICAL SCIENCE  
 SCEN 102\* PHYSICAL SCIENCE

STAT 200 BASIC STATISTICAL PRACTICE

### **Majors And Minors**

Every attempt has been made to present an accurate description of the curriculum requirements in the programs that follow. However, programs and policies may be changed during the academic year, and students are advised to check with the department

concerned or the College of Arts and Sciences Undergraduate Academic Services Office, Room 219, Mitchell Hall, 831-3020, for the most current information.

### **African Studies**

Telephone: 302-831-1858  
<http://www.udel.edu/AreaStudies/africa.html>  
 Faculty Listing: [http://www.udel.edu/AreaStudies/africa\\_faculty.html](http://www.udel.edu/AreaStudies/africa_faculty.html)

The African Studies Minor has been designed to provide an intellectually coherent program of study based upon regularly offered courses in several different fields in the humanities and social sciences. This program is intended to enhance a student's undergraduate major.

### **MINOR IN AFRICAN STUDIES**

The minor requires eighteen credit hours drawn from the courses below. Students must take six of the following courses selected from at least four different departments. In addition, in consultation with the program director, students may count toward the minor courses taken during the UD winter session programs in Ghana and South Africa.

ANTH 333/BAMS 333 Peoples of Africa  
 ANTH 457/ARTH 457 Survey of African Art  
 ARTH 204 Art, Power and Architecture in Africa  
 ARTH 206 Introduction to Art and Architecture in Africa  
 ARTH 420 Seminar in African Art  
 BAMS 331/HIST 331 History of the Caribbean I  
 BAMS 332/HIST 332 History of the Caribbean II  
 ENGL 382 The African Novel  
 FREN 455 African Francophone Literature and Cinema  
 FREN 457 The Francophone World  
 FREN 458 Aspects of Francophone Literature  
 FREN 459 Negritude, Antillanite, Creolite  
 HIST 134/BAMS 134 History of Africa  
 HIST 330 Peasants and Revolution in Africa  
 HIST 394 Africa Since 1960  
 HIST 395 Pan Africanism  
 HIST 397 History of South Africa  
 HIST 439/WOMS 439 Women and Revolution in Africa

HIST 440	Seminar in Africa Under Colonial Rule
HIST 475	The End of the French Empire
NTDT 452	Issues in International Nutrition
POSC 433	African Politics
POSC 439/BAMS 439	Southern African Politics

Substitutions for the above courses may be made with permission of the program director. Independent studies and special problems courses may also count toward the minor with the director's approval.

### Anthropology

Telephone: (302) 831-2802  
<http://www.udel.edu/anthro>  
 Faculty Listing: <http://www.udel.edu/anthro/people.html>

The Department of Anthropology offers undergraduate major programs in Anthropology and Anthropology Education, including Honors Degree options, in both. In addition, interdepartmental majors with other departments are possible, and an Anthropology minor is also available.

Anthropology is the study of humans and their works. The field includes both the comparative study of worldwide variations in culture and the development of humankind from prehistoric to contemporary times. Anthropology at the University of Delaware encompasses three distinct but interconnected fields of study: social and cultural anthropology, biological or physical anthropology, and archaeology. Social and cultural anthropologists undertake holistic comparative studies of communities throughout the world, studying their art forms, religions, social organizations, and political and economic institutions. Biological anthropology addresses itself to the evolutionary differentiation of primates, the emergence of hominid populations, primate behavior and processes of adaptation in modern populations. Archaeological work is directed toward recovering the physical remains of prehistoric and historic communities and retracing their many different forms of cultural development and adaptation.

The undergraduate program at the University emphasizes a variety of subspecialties in social and cultural anthropology, but provides,

nevertheless, a broad perspective on the fields of archaeology and biological anthropology. Because the department is devoted primarily to undergraduate instruction, students can take advantage of many opportunities to work closely with the faculty and to participate in small seminar classes. Courses are enriched by visits to museums and special exhibits in neighboring cultural centers, by films, and by local field inquiry.

### ANTHROPOLOGY(BA)

#### CURRICULUM CREDITS

See University and College requirements.

#### MAJOR REQUIREMENTS

ANTH 200 Introduction to the History of Anthropological Theory 3

Tutorial (ANTH 486, ANTH 487, ANTH 488 or ANTH 489) 3

Social and cultural anthropology course credits (minimum) 9

Archaeology course credits (minimum) 6

Biological anthropology course credits (minimum) 6

Capstone (see alternative options below):

A second tutorial, or

A senior thesis (UNIV 401), or

Independent study (ANTH 466), or

Anthropology Study Abroad (ANTH 466), or

Internship 3

(Except for the first-listed choice, (a second tutorial), all of the Capstone options must be approved by the department chair; and each must be closely supervised by a department member.)

#### Numerical Levels of Courses

No fewer than 12 of the 24 credits necessary to satisfy the discipline areas - archaeology, biological anthropology and social/cultural anthropology - must be at or above the 300 level. The minimal acceptable standard for a major course is C-.

#### ELECTIVES

After required courses are completed sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

## ANTHROPOLOGY EDUCATION (BA)

### CURRICULUM CREDITS

University and College requirements.

### MAJOR REQUIREMENTS

ANTH 200 Introduction to the History of Anthropological Theory 3

Tutorial (ANTH 486, ANTH 487, ANTH 488 or ANTH 489) 3

Social and cultural anthropology course credits (minimum) 9

Archaeology course credits (minimum) 6

Biological anthropology course credits (minimum) 6

Capstone (see alternative options below):

A second tutorial, or

A senior thesis (UNIV 401), or

Independent study (ANTH 466), or

Anthropology Study Abroad (ANTH 466), or Internship 3

(Except for the first-listed choice, (a second tutorial), all of the Capstone options must be approved by the department chair; and each must be closely supervised by a department member.)

### Numerical Levels of Courses

No fewer than 12 of the 24 credits necessary to satisfy the discipline areas - archaeology, biological anthropology and social/cultural anthropology - must be at or above the 300 level.

The minimal acceptable standard for a major course is C-.

In addition to the capstone course and second capstone experience, all students must take a minimum of 18 credits above the 100 level (i.e., 200 level or higher), of which 12 credits must be at the 300 level or above.

Economics course 3

Geography course 3

History course 3

Political Science course 3

Sociology course 3

PSYC 100 General Psychology 3

Six additional credits selected from the departments listed above 6

EDUC 413 Adolescent Development and Educational Psychology 4

EDUC 414 Teaching Exceptional

EDUC 419 Adolescents 3  
Diversity in Secondary Education 3

HIST 491 Planning a Course of Instruction 3

HIST 493 Seminar: Problems in Teaching History and Social Sciences 3

EDUC 420 Reading in the Content Areas 1

EDUC 400 Student Teaching 9

Grade of C- or better required in major, major related, and professional studies courses. To be eligible to student teach, Anthropology Education majors must have a GPA of 3.0 in their major and an overall GPA of 2.75. They must also pass a teacher competency test as established by the University Council on Teacher Education. Students must consult with the teacher education program coordinator to obtain the student teaching application and other information concerning student teaching policies.

CREDITS TOTOTAL A MINIMUM OF 124

### Honors Anthropology or Anthropology Education (BA)

All Honors Degree Candidates must complete the following:

1. All requirements for the BA in Anthropology or Anthropology Education.

2. All of the University's generic requirements for the Honors Baccalaureate degree .

### INTERDEPARTMENTAL MAJORS

An interdepartmental major, for students having interests in two areas, requires 21 credits each in anthropology and in one other department as well as 9 credits of related work. The following areas are required by the Anthropology Department:

- 3 Credits in biological anthropology

- 3 Credits in archaeology

- 9 Credits in social and cultural anthropology

- 12 Credits at the 300-level or above

- 3 Credits of any 48X Tutorial

A 48X Tutorial satisfies a 300+ requirement as well as any three credits in a subdiscipline (e.g. ANTH 486 would also satisfy three of the nine credit hours required in social and cultural anthropology).

Students should consult with their advisors for

additional information on interdepartmental majors.

## MINOR IN ANTHROPOLOGY

Students wishing to minor in anthropology must complete 18 credits in anthropology courses distributed as follows: 6 credits in 100- and 200-level courses, of which only 3 credits may be at the 100-level and 12 credits in 300- and 400-level courses.

## Art

Telephone: (302) 831-2244  
<http://www.udel.edu/art>

The Department of Art is a studio-oriented department offering a wide range of visual arts activities and subject areas. Passing a portfolio review is required for admission to the major. The department offers undergraduate majors in Art (Bachelor of Arts), Fine Arts (Bachelor of Fine Arts), and Visual Communications (Bachelor of Fine Arts). The BA degree requires 42 credit hours minimum of art courses and 51 credit hours maximum. The B.F.A. degree requires 75 credit hours minimum of art courses and 86 credit hours maximum. All grades in art courses must be C- or better. Admission to the B.F.A. is contingent upon submission of a portfolio of digital slides and/or original work after completion of the freshman year, a minimum of 18 credits of foundation courses and a 2.66 GPA in studio art courses. A limited number of students are admitted to the B.F.A. degree programs.

Foundation studio art courses are taken in the freshman year. Fine Arts core, concentration, art studies, and art electives are taken in the sophomore through senior years. Art 416 and Art 417 are only required of B.F.A. majors and are taken in the senior year. Art History courses may be applied toward both the art major related work requirement and a breadth requirement, but credits are counted only once toward the total credits for graduation.

The Bachelor of Fine Arts in Visual Communications degree is an intense series of courses intended to inspire inquiry in the art of communication design and development of applicable skills in various creative processes. The degree path begins with graphic design fundamentals and leads each student toward a

self-motivated career in the applied arts through a variety of required and elective courses in graphic design, advertising, illustration and new media. Visual Communications majors are required to receive a grade of C- or better in all required courses to continue in the degree path.

The department enjoys an excellent reputation and has a Macintosh-based computer site within the department, including imaging and layout software, scanners, and color printers. The proximity of the University to major cultural centers of the northeastern United States provides students with easy access to important museums and galleries and allows for an outstanding program of visiting artists.

## ART (BA)

### CURRICULUM CREDITS

University and College requirements.

### MAJOR REQUIREMENTS

ART 110	Drawing I	3
ART 111	Design I	3
ART 112	Drawing II	3
ART 113	Design II	3
ART 116	Introduction to Digital Media	3
ART 117	Research Studio: Practice and Product	3

Art Concentration 12  
Twelve credits beyond those that might have been taken as part of foundation requirements. At least three credits must be at the 400-level. (ceramics, painting, photography, printmaking, sculpture)

Art Electives 12  
Courses from other department concentrations outside of chosen art discipline.

Art History courses 12

### ELECTIVES

After required courses are completed sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

## FINE ARTS (BA)

### CURRICULUM CREDITS

### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing 3  
(minimum grade C-)

First Year Experience (FYE) 0-4  
University Breadth Requirement 12  
Discovery Learning Experience (DLE) 3  
Multi-cultural Courses (MCC) 3

#### COLLEGE REQUIREMENTS

Writing: (minimum grade C-) 3  
A second writing course involving significant writing experience including two papers with a combined minimum of 3,000 words to be submitted for extended faculty critique of both composition and content. This course must be taken after completion of 60 credit hours. Appropriate writing courses are normally designated in the semester's Registration Booklet. (See list of courses approved for second writing requirement)

Mathematics (one of the following) 0-4

MATH 113 Contemporary Mathematics  
(designed for students who do not intend to continue the study of mathematics)

MATH 127 Mathematics and Quantitative Reasoning (designed for students who do not intend to continue the study of mathematics)

MATH 114 College Mathematics and Statistics

(designed for students who do not intend to continue the study of mathematics)

MATH 115 Pre-Calculus  
(designed for students who intend to continue the study of mathematics)

MATH 221 Calculus I  
(designed for students who intend to continue the study of mathematics)

MATH 241 Analytic Geometry and Calculus A (designed for students who intend to continue the study of mathematics)

or

Successful performance on the college proficiency exam. (0 credits awarded)

#### COLLEGE OF ARTS AND SCIENCES BREADTH REQUIREMENTS

The College Breadth requirements are in addition to the University Breadth requirement.

Up to 3 credits from each of the University Breadth Requirement categories may be used to simultaneously satisfy these College of Arts and Sciences Breadth Requirements

Group A Creative Arts and Humanities. Nine credits representing at least two areas.

Group B History and Cultural Change. Nine credits representing at least two areas.

Group C Social and Behavioral Sciences. Nine credits representing at least two areas.

Group D Mathematics, Natural Sciences and Technology. A minimum of seven credits representing at least two areas including a minimum of one course with an associated laboratory.

If the grade earned is sufficient, a course may be applied toward more than one requirement (e.g., breadth and major requirements), but the credits are counted only once toward the total credits for graduation. If all but one course in a group has been taken in one department or program, a course cross-listed with that program will not satisfy the distribution requirement

#### MAJOR REQUIREMENTS

NOTE: The BFA degree requires 75 credit hours minimum of art courses and 86 credit hours maximum. All grades in art courses must be C- or better.

#### Freshman Foundation Requirements

ART 110	Drawing I	3
ART 111	Design I	3
ART 112	Drawing II	3
ART 113	Design II	3
ART 116	Introduction to Digital Media	3
ART 117	Research Studio: Practice and Product	3

Total Freshman Foundation 18

#### Sophomore Year Requirements

Fine Arts Core 15		
ART 231	Introduction to Painting	
ART 243	Introduction to Printmaking	
ART 250	Introduction to Sculpture	
ART 290	Introduction to Ceramics	
ART 280	Introduction to Photo and Video	

Fine Arts Elective 3

Total Sophomore Year 18

#### Junior and Senior Year Requirements

Fine Arts Electives 36  
 (To be taken from all Department of Art offerings at the 200-, 300-, and 400-levels)  
 ART 416 Senior Seminar 3  
 ART 417 BFA Exhibition 0  
 Total Junior and Senior Years 39

TOTAL BFA/FINE ARTS MINIMUM DEGREE CREDITS 75

Art History Requirement  
 Four classes from Art History or Three classes from Art History and ART 315 Contemporary Issues  
 Total Art History Requirement 12  
 (A student may double count 315 as an upper division studio elective course and as an Art History course.)

**ELECTIVES**  
 After required courses are completed sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

**VISUAL COMMUNICATIONS (BA)**

**CURRICULUM**

**UNIVERSITY REQUIREMENTS**  
 ENGL 110 Critical Reading and Writing (minimum grade C-) 3  
 First Year Experience (FYE) 0-4  
 University Breadth Requirement 12  
 Discovery Learning Experience (DLE) 3  
 Multi-cultural Courses (MCC) 3

**COLLEGE OF ARTS AND SCIENCES REQUIREMENTS**

Writing: (minimum grade C-) 3

A second writing course involving significant writing experience including two papers with a combined minimum of 3,000 words to be submitted for extended faculty critique of both composition and content. This course must be taken after completion of 60 credit hours. Appropriate writing courses are normally designated in the semester's Registration Booklet. (See list of courses approved for second writing requirement.)

Mathematics (one of the following): 0-4  
 MATH 113 Contemporary Mathematics

(designed for students who do not intend to continue the study of mathematics)  
 MATH 127 Mathematics and Quantitative Reasoning (designed for students who do not intend to continue the study of mathematics)  
 MATH 114 College Mathematics and Statistics (designed for students who do not intend to continue the study of mathematics)  
 MATH 115 Pre-Calculus (designed for students who do intend to continue the study of mathematics)  
 MATH 221 Calculus I (designed for students who do intend to continue the study of mathematics)  
 MATH 241 Analytic Geometry and Calculus A (designed for students who do intend to continue the study of mathematics)

or  
 Successful performance on the college proficiency exam. (0 credits awarded)

Breadth:  
 (minimum grade C-)  
 The College Breadth Requirements are in addition to the University Breadth Requirement. Up to 3 credits from each of the University Breadth Requirement categories may be used to simultaneously satisfy these College of Arts and Sciences Breadth Requirements

Group A Creative Arts and Humanities. Nine credits representing at least two areas.

Group B History and Cultural Change. Nine credits representing at least two areas.

Group C Social and Behavioral Sciences. Nine credits representing at least two areas.

Group D Mathematics, Natural Sciences and Technology. A minimum of seven credits representing at least two areas including a minimum of one course with an associated laboratory.

If the grade earned is sufficient, a course may be applied toward more than one requirement (e.g., breadth and major requirements), but the credits are counted only once toward the total credits for graduation. If all but one course in a group has been taken in one department or program,

a course cross-listed with that program will not satisfy the distribution requirement.

## MAJOR REQUIREMENTS

NOTE: The BFA in Visual Communications degree requires a minimum of 75 credit hours minimum of art courses and 86 credit hours maximum. All grades in art courses must be a C or better.

### Freshman Foundation Requirements

ART 110	Drawing I	3
ART 111	Design I	3
ART 112	Drawing II	3
ART 113	Design II	3
ART 116	Introduction to Digital Media	3
ART 117	Research Studio: Practice and Product	3
Total Freshman Foundation		18

### Sophomore Year Requirements

ART 202	Typography I	3
ART 203	Typography II	3
ART 204	Media/Design/Culture	3
ART 206	Form and Communication I	3
ART 207	Form and Communication II	3
Total Sophomore Year Credits		15

### Junior Year Requirements

ART 300	Typography III	3
ART 301	Graphic Design Studio	3
ART 308	Form and Communication III	3
VC Studio Electives (see below)		3
Total Junior Year Credits		12

### Senior Year Requirements

ART 400	Visual Communications Practicum	3
ART 401	Visual Communications Portfolio Preparation	3
ART 417	BFA Exhibition	0
VC Studio Electives (see below)		6
Total Senior Year Credits		12

### VC Studio Electives

A total of 9 credit hours are required from the following list of courses many of which may be repeated for up to 6 credits:

ART 307	Interactive Media
ART 310	Photographic Design Methods
ART 312	Illustration Methods
ART 322	Advertising Design Methods
ART 346	Letterpress Printing
ART 406	Artist's Machine
ART 407	Topics in Art Technology
ART 412	Illustration Topics
ART 422	Advertising Design Topics

### Art Electives 15

After the required major requirements, an additional 15 credits must be from Art Department courses.

Discovery Learning (Internship) 3  
For VC students, the University Discovery Learning Requirement is typically satisfied by ART 408: Visual Communications Internship, however, students may elect to fulfill this requirement through other means upon approval of the program coordinator.

### Art History Requirement

Of the total credits required for the degree, 12 credits must be of Art History, or 9 credits of Art History and 3 of ART 315: Issues in Contemporary Art  
Total BFA/VC Minimum Degree Credits 75  
CREDITSTOTOTAL A MINIMUM OF 124

### MINOR IN FINE ARTS

ART 129 or ART 138 (minimum grade of B)  
3 credits  
(Students take this class before being admitted to the minor. Students may then apply for the minor and enter with the Chairperson's approval.)

Four studio ART classes at the 200-, 300-, or 400-level in any studio art courses for which they meet the prerequisites.  
12 credits

(Students may choose from one or more areas. Students must follow prerequisites for all courses. Enrollment is based on class availability. Classes will not be guaranteed in any one area to complete the minor.)

Art History or ART 204 or ART 215 or ART 315  
3 credits

TOTAL CREDITS 18

### MINOR IN INTERACTIVE MEDIA

For more information contact the imm-committee@udel.edu.  
Website: [http://interactivemedia.udel.edu/degree\\_requirements.html](http://interactivemedia.udel.edu/degree_requirements.html)

The minor requires a minimum of four semesters to complete following the recommended sequence of classes. The minor requires 18 credits taken as follows:

ART 307	Interactive Media	3
CISC 103	Introduction to Computer Science with Web Applications	3
ENGL 416	Designing Online Information	3
COMM 408	New Media Project Development	3
Two elective courses		6

**Note about Elective Courses:**

Students must take two additional courses from existing University courses approved by the Governance and Admissions Committee. These courses are approved by the student's advisor and the Governance and Admissions Committee on a student-by-student basis depending on each student's major and rationale as stated in the application to the minor. Students will be strongly encouraged to participate in an internship experience as one of these courses. There are a number of viable and pertinent internship possibilities on campus, which would enhance the student's experience.

Elective courses may be taken at any time, once approved by the Interactive Media Admissions committee.

**Art Conservation, Material Culture Preservation**

Art Conservation  
 Telephone: (302) 831-3489  
[www.artcons.udel.edu](http://www.artcons.udel.edu)

Faculty Listing: [www.artcons.udel.edu/school/people](http://www.artcons.udel.edu/school/people)

The Art Conservation Department offers an undergraduate major called Material Culture Preservation leading to a Bachelor of Arts degree. The Material Culture Preservation major involves interdisciplinary study in chemistry, studio arts, anthropology, art history and history with a focus on preventive conservation studies. This major gives students a strong background for applying to graduate programs in Art Conservation, Historic Preservation, Library and Archival Preservation and Museum Studies. An Honors Degree option is available.

Working closely with an advisor, students elect courses in the departments of anthropology, art, art conservation, art history, chemistry and biochemistry, history and others. We encourage students to minor or double major in another discipline. During the junior or senior year,

majors are required to participate in two on- or off-site internships. Also, specialized materials and techniques of art and preservation courses are required. Students in this program must earn a minimum of a C- in all required courses.

**MATERIAL CULTURE PRESERVATION (BA)**

**CURRICULUM CREDITS**

University and College requirements.

**MAJOR REQUIREMENTS (65 or 69 credits)**

ARTC 101	Freshman Conservation Experience	1
ARTC 301	Care and Preservation of Cultural Property I	3
ARTC 302	Care and Preservation of Cultural Property II	3
ARTC 464	Conservation Internship (two semesters)	6 (Junior and/or Senior status only)
ARTC 495	Senior Capstone	3

One of the following 3-4

ARTC 485	Color Mixing and Matching	3
ARTC 210	Science of Color Phenomena	4
One of the following		3
ARTC 488	Studio in the Materials and Techniques of Painting I	
ARTC 489	Studio in the Materials and Techniques of Painting II	
ARTC 480	Studio in the Materials and Techniques of Drawing in the West	
ARTC 490	Studio in the Materials and Techniques of Printmaking I	

Three of the following 9

ART 110	Drawing I	
ART 130	Drawing I: Tools and Techniques	
ART 138	Painting Approaches	
ART 231	Introduction to Painting	
ART 243	Introduction to Printmaking	
ART 250	Beginning Sculpture	
ART 281	Darkroom Photography	
ART 290	Beginning Ceramics	

Two courses from the following 6

ANTH 103	Introduction to Prehistoric Archaeology	
ANTH 104	Introduction to Archaeology and Biological Anthropology	
ANTH 105	Introduction to Historical Archaeology	
ARTH 153	Introduction to Art History I	

ARTH 154 Introduction to Art History II  
ARTH 162 History of Architecture

One of the following (A or B) chemistry sequences 16-19

Option A (16 credits)

CHEM 103 General Chemistry  
CHEM 104 General Chemistry  
CHEM 321 Organic Chemistry  
CHEM 322 Organic Chemistry

Option B (for Chemistry majors or minors) (19 credits)

CHEM 111 General Chemistry  
CHEM 115 Introduction to Chemical Sciences  
  
CHEM 112 General Chemistry  
CHEM 120 Quantitative Chemistry II  
CHEM 321 Organic Chemistry  
CHEM 322 Organic Chemistry

Four courses of upper division Anthropology, Art Conservation, Art History, History, Black American Studies, Museum Studies, and/or Fashion and Apparel Studies courses with a strong material culture basis with approval by an Art Conservation academic advisor prior to enrollment in the course. 12

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

#### HONORS- MATERIAL CULTURE PRESERVATION (BA)

Students wishing to receive an Honors BA in Material Culture Preservation must complete:

1. All requirements for the Bachelor of Arts degree in Material Culture Preservation.
2. All of the University's generic requirements for the Honors Baccalaureate degree.

The Honors credits required in Art Conservation include ARTC 301 and ARTC 302 and courses in such collateral disciplines as Anthropology, Art History, and Chemistry.

The Art Conservation Department will offer ARTC 301 and ARTC 302 for Honors credit in

conjunction with the regular section. Students enrolled for Honors credit will be responsible for additional assignments and activities, including in-depth investigation of art and artifact technology and deterioration using visual and microscopic analysis, individual meetings with the instructor and local conservation professionals focused on current issues relating to the care and preservation of cultural property, and on-site assessment of the condition and collection care practices of local cultural institutions.

Students seeking an Honors degree will normally be expected to take ARTH 153/ARTH 154 and CHEM 103/CHEM 104 or (at least some of) CHEM 111/CHEM 112 and CHEM 119/CHEM 120 for Honors credit. For the Honors Degree with Distinction, the Honors Thesis (UNIV 401/UNIV 402) will involve 6 credits of advanced-level research in Art Conservation studies.

#### Art History

Telephone: (302) 831-8415  
<http://www.udel.edu/ArtHistory>  
Faculty Listing: <http://www.udel.edu/ArtHistory/faculty.html>

The Department of Art History offers programs of study for majors and minors. Although majors may concentrate on the art of a particular time period or region, the program is designed to provide broad experience spanning many centuries and cultures. Because art history is an interdisciplinary field that extends into other areas of culture, the major includes work in such related disciplines as anthropology, studio art, English, history, languages and literature, music, philosophy, and theater.

Art History is concerned with the historical development of visual artifacts in relation to cultures and societies. The Department offers courses in nearly every area of art history, including European and American painting, photography, sculpture, and architecture from antiquity to the present, as well as African, Islamic, Asian, and Latin American art. The faculty of the Department collaborates with the Winterthur Programs in Early American Culture and Art Conservation, as well as with faculty in Museum Studies and Material Culture. Visits to museums from New York to Washington are scheduled in connection with many art history courses. The University Gallery houses

a collection of original works of art and offers internship, research, and exhibition opportunities for students.

## ART HISTORY (BA)

### CURRICULUM CREDITS

University and College requirements.

MAJOR REQUIREMENTS (33 credits minimum; 45 credits maximum)

Two (maximum) 100-level ARTH courses 6  
We recommend either ARTH 153 or ARTH 154 or both.

Four courses at the 200-level or above, one each in 4 of the 5 following areas 12

1. Before the year 1400
2. 1400-1700
3. 1700-1900
4. 1900-present
5. African, Asian, Islamic, or Latin American art

ARTH 301 Research and Methodology in Art History 3

Art history courses at the 300-level or above 3

Art History seminar at the 400-level 3

Other ARTH courses at 200-level or above 6

ENGL 202 Biblical and Classical Literature 3

Any advisor-approved 200- or 300-level History course 3

Nine credits, with the advisor's approval, from appropriate courses in the following areas: 9  
Anthropology, Studio Art, Art Conservation, Education, English, History, Foreign Languages and Literature (other than that used to satisfy the College's foreign language requirement), Music, Philosophy, and Theatre. A second History course, a Studio Art course, and a foreign language literature course are recommended.

### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

## HONORS- ART HISTORY (BA)

The recipient must complete:

1. All requirements for the Bachelor of Arts degree in Art History.
2. All of the University's generic requirements for the Honors Baccalaureate degree.
3. The student's grade point average for courses in the major must be at least 3.50 at the time of graduation.

### MINOR IN ART HISTORY

The minor in art history requires 18 credits of course work, including at least four courses at or above the 200-level. Students must distribute their courses among at least three different key areas of art history according to the areas for the major requirements: Before the year 1400; 1400-1700; 1700-1900; 1900-present; African, Asian, Islamic, or Latin American art. Several courses in art history may be applied toward fulfilling Group A and B requirements in the College of Arts and Sciences.

## Biological Sciences

Telephone: (302) 831-2282

<http://www.udel.edu/bio>

Faculty Listing: <http://www.udel.edu/bio/people/>

The Department of Biological Sciences offers two degrees with six majors. A BA degree may be earned in Biological Sciences, Biological Sciences Education and an Honors BA degree may be earned in Biological Sciences. A BS degree in Biological Sciences may be earned with a concentration in Biotechnology, Pharmaceutical Sciences, Ecology & Organismic Biology, or Cellular & Molecular Biology & Genetics and an Honors BS degree may be earned in Biotechnology. In addition the department offers two minors: Biological Sciences and Computational Biology.

The department participates in an interdepartmental BS degree in Environmental Sciences. Students interested in marine biology are encouraged to take advantage of courses and research opportunities in the Department of Biological Sciences and the University's College of Earth, Ocean, and Environment.

## BIOLOGICAL SCIENCES DEGREE PROGRAMS

During the freshman year, biological science majors for the BA, BS, and Biological Sciences Education degrees ordinarily take courses in biology, chemistry, English, foreign language, and mathematics through calculus. Students must consult with their faculty advisors to select wisely from the variety of advanced courses and electives available to sophomores, juniors and seniors.

Many opportunities exist for research experience with a faculty member. In addition, an opportunity for teaching experience exists. Up to 4 credits of research or independent study (BISC 366, BISC 466, or BISC 468) may be counted toward the 33 credits required for the majors in Biological Sciences or Biological Sciences Education. Some biology-related courses in other departments may be counted toward the major (limit 6 credits).

A grade of C- or better must be obtained in all biology courses that are used to satisfy the requirements for the Biological Sciences BA, BS, and Biological Sciences Education degrees. A grade of D (not D-) or better must be obtained in chemistry, physics, and mathematics courses required for the Biological Sciences majors and minor. A grade of C or better is required for all required courses in the concentration in Pharmaceutical Sciences. Biology courses at the 100-level may not be counted toward these degrees.

### CONCENTRATIONS IN ECOLOGY & ORGANISMIC BIOLOGY AND IN CELLULAR & MOLECULAR BIOLOGY & GENETICS

Biology is an extraordinarily broad discipline and specialization in more focused areas has become desirable for increasing numbers of students. The BS concentrations in Ecology & Organismic Biology and in Cellular & Molecular Biology & Genetics maintain large portions of the traditional BA degree while offering the opportunity for highly motivated students to pursue a somewhat narrower curriculum. These concentrations require more credit hours in the major and there are two additional requirements. First, a student must have a GPA of 3.0 in selected courses for admission to the degree (see details at the beginning of the statement of requirements for each concentration). Students will typically apply in the spring of their sophomore year. Second, a senior thesis

based on original research must be completed and defended. The thesis may also be used for the Degree with Distinction and Honors Degree programs.

### CONCENTRATION IN BIOTECHNOLOGY

The Bachelor of Science degree in Biological Sciences with a concentration in Biotechnology is a four-year program that emphasizes laboratory courses/experiences in various aspects of molecular, cellular, and physical biosciences. It is intended for students who hope to be employed in a laboratory setting after graduation and for those who will be continuing their education at the graduate level in a related discipline.

During the first two years at the University, students interested in biotechnology generally take the same courses as those pursuing a BA degree in biological sciences. Students are not admitted into the program until the fall semester of the third year. Students apply for admission in the spring of the sophomore year. Admission is usually limited to 15 students per class. A minimum grade-point index of 2.5 is required for application.

Eligibility for admission to the junior year of the Biotechnology program will be based on the following criteria:

1. Minimal cumulative index; first three semesters - 2.5
2. Minimal index in the sciences; first three semesters - 2.5
3. A grade of C or better in BISC 207, BISC 208, BISC 401 and BISC 300 (or other bio course if BISC 300 is not taken).
4. Within the pool of eligible applicants, admission into the program will be determined by academic achievement, and priority will be given to full-time University sophomores with a stated interest in obtaining employment in biotechnology or in pursuing a graduate degree in a related discipline.

### CONCENTRATION IN PHARMACEUTICAL SCIENCES

The Bachelor of Science (BS) degree in Biological Sciences, with a concentration in Pharmaceutical Sciences, is a joint program with Thomas Jefferson University College of Health Professions (TJU) toward the award of an undergraduate BS degree and a graduate degree in Pharmacy (PharmD degree). There

are UD and TJU components to this program. The UD component of the program consists of the first three years (90 credits) of the Bachelor of Arts degree in Biological Sciences. Students must meet the requirement for Biology BS concentrations. During the fifth semester at UD, and upon final recommendation by the UD/Thomas Jefferson University (TJU) Joint Admissions Committee, students will be admitted to the TJU PharmD program and to the BS Biological Sciences degree with a concentration in Pharmaceutical Sciences. These students will then complete their sixth semester at UD and spend the remaining four years at TJU where they will complete their remaining undergraduate credits and graduate coursework leading to the PharmD degree. The undergraduate courses taken at TJU during the fourth and fifth years will replace courses students would normally take during their senior year in the Biological Sciences BS degree program. Furthermore, the curriculum allows students who opt not to continue into the PharmD component of the degree to complete the Biological Sciences BA requirements within one year upon their return to UD.

#### COOPERATIVE EDUCATION PROGRAM

Through the cooperation of area businesses, industry, and government agencies, students may integrate their academic study with practical work experience. Co-op positions are available during any semester, including winter and summer sessions, for academic credit. Students register for BISC 244 (1-9 credit hours). Credits earned in this pass/fail course count toward graduation but not toward the 33 credit hours needed for the major in biological sciences. Placements vary from part to full time and may be salaried or on a volunteer basis.

Information about this program may be obtained from the Career Services Center or the Biology Advisement Office, telephone (302) 831-2282.

#### BIOLOGICAL SCIENCES (BA)

##### CURRICULUM CREDITS

University and College requirements.

##### MAJOR REQUIREMENTS

Minimum grade C- required in all BISC courses for a total of at least 33 credits in biology.

BISC 207/BISC 208 Introductory Biology I and II 8

BISC 302 General Ecology 3  
 BISC 306 General Physiology 3  
 BISC 305 Cell Physiology  
 Or  
 BISC 401 Molecular Biology of the Cell 3  
  
 BISC 403 Genetic and Evolutionary Biology 3

One of the following lab courses. The corresponding lecture is a prerequisite. (THE LECTURE AND THE LAB CANNOT BE TAKEN SIMULTANEOUSLY EXCEPT FOR BISC 312, WHICH MAY BE TAKEN CONCURRENTLY WITH BISC 302).

BISC 312 Quantitative Ecology 3  
 BISC 316 Experimental General Physiology 3  
 BISC 315 Experimental Cell Biology 3  
 BISC 411 Experimental Molecular Biology of the Cell 3  
 BISC 413 Experimental Genetic and Evolutionary Biology 3

A literature-based 600 level course chosen from a list on the department website 3-4

Biology electives at the 300-level or above to total 33 credit hours in Biological Sciences.

##### RELATED COURSEWORK

CHEM 103/CHEM104 General Chemistry 8  
  
 CHEM 321 Organic Chemistry 4  
 CHEM 322 Organic Chemistry 4  
 Or  
 CHEM 213 Elementary Organic Chemistry 4  
 CHEM 214 Elementary Biochemistry 3  
 CHEM 216 Elementary Biochemistry Laboratory 1

PHYS 201/PHYS 202 Introductory Physics I and II 8

MATH 241 Analytic Geometry and Calculus A 4

A grade of D (not D-) or better must be obtained in Chemistry, Physics and Mathematics courses required for all Biological Sciences majors and minor.

##### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

## BIOLOGICAL SCIENCES EDUCATION (BA)

Students planning to major in biology with the purpose of teaching science in secondary schools must identify themselves and plan their programs with the faculty advisor for secondary education as early in their academic careers as possible. The following course of study is designed to prepare students for teacher certification.

### CURRICULUM CREDITS

University and College requirements.

### MAJOR REQUIREMENTS

Minimum grade C- required in all BISC courses for a total of at least 33 credits in biology.

BISC 207/BISC 208 Introductory Biology I and II 8

BISC 302 General Ecology 3

BISC 306 General Physiology 3

BISC 305 Cell Physiology

Or

BISC 401 Molecular Biology of the Cell 3

BISC 403 Genetic and Evolutionary Biology 3

Two courses in experimental biology. The corresponding lecture is a prerequisite. (THE LECTURE AND THE LAB CANNOT BE TAKEN SIMULTANEOUSLY EXCEPT FOR BISC 312, WHICH MAY BE TAKEN CONCURRENTLY WITH BISC 302).

ONE of:

BISC 312 Quantitative Ecology 3

BISC 316 Experimental General Physiology 3

And ONE of:

BISC 315 Experimental Cell Biology 3

BISC 411 Experimental Molecular Biology of the Cell 3

BISC 413 Experimental Genetic and Evolutionary Biology 3

A literature-based 600 level course chosen from a list on the department website 3-4

Biology electives at the 300-level or above to total 33 credit hours in Biological Sciences.

### RELATED WORK

CHEM 103/CHEM 104 General Chemistry 8

CHEM 213 Elementary Organic Chemistry 4

Or

CHEM 321 Organic Chemistry 4

CHEM 214 Elementary Biochemistry 3

CHEM 216 Elementary Biochemistry Laboratory 1

PHYS 201/PHYS 202 Introductory Physics I and II 8

MATH 221 Calculus I 3

Or

MATH 241 Analytic Geometry and Calculus A 4

GEOL 107 General Geology 4

Geology Elective 3-4

EDUC 413 Adolescent Development and Educational Psychology 4

EDUC 414 Teaching Exceptional Adolescents 3

EDUC 419 Diversity in Secondary Education 3

EDUC 420 Reading in the Content Areas 1

EDUC 400 Student Teaching 9

SCEN 491 Teaching Science in Secondary Schools 4

Grade of C- or better required in all required EDUC courses and SCEN 491.

To be eligible to student teach, Biological Sciences Education students must have a GPA of 2.75 in their biology major and an overall GPA of 2.5. They must also pass a teacher competency test as established by the University Council on Teacher Education. Students must consult the teacher education program coordinator to obtain the student teaching application and other information concerning student teaching policies.

A grade of D (not D-) or better must be obtained in Chemistry, Physics, Mathematics, and Geology courses required for all Biological Sciences majors and minor.

CREDITS TO TOTAL A MINIMUM OF 124

## HONORS- BIOLOGICAL SCIENCES OR BIOLOGICAL SCIENCES EDUCATION (BA)

The recipient must complete:

1. All requirements for the Bachelor of Arts degree in Biological Sciences or in Biological Sciences Education.

2. All of the University's generic requirements for the Honors degree.

UNIVERSITY AND COLLEGE REQUIREMENTS  
FOR ALL BIOLOGICAL SCIENCES BS  
CONCENTRATIONS

CURRICULUM CREDITS

UNIVERSITY REQUIREMENTS

ENGL 110	Critical Reading and Writing	3
(minimum grade C-)		
First Year Experience (FYE)		0-4
University Breadth Requirement		12
Discovery Learning Experience (DLE)		3
Multi-cultural Courses (MCC)		3

COLLEGE REQUIREMENTS

Writing: (minimum grade C-) 3  
A second writing course involving significant writing experience including two papers with a combined minimum of 3,000 words to be submitted for extended faculty critique of both composition and content. This course must be taken after completion of 60 credit hours. Appropriate writing courses are normally designated in the semester's Registration Booklet. (See list of courses approved for second writing requirement).

Foreign Language: 0-12  
Completion of the intermediate-level course (107 or 112 or 214) in a given language. The number of credits needed and initial placement will depend on number of years of high school study of foreign language. Students with four or more years of high school work in a single foreign language may attempt to fulfill the requirement in that language by taking an exemption examination.

**BREADTH REQUIREMENTS** A total of twenty-one credits from Groups A, B and C is required with a minimum of six credits in each group 21

The six credits from each group could be from the same area.

Group A: Understanding and appreciation of the creative arts and humanities.

Group B: The study of culture and institutions over time.

Group C: Empirically based study of human beings and their environment.

CREDITS TO TOTAL A MINIMUM OF 124

**BIOLOGICAL SCIENCES (PHARMACEUTICAL SCIENCES) (BS)**

A faculty member advises students in the Program. Requirements for admission are:

1. Successful completion of all Thomas Jefferson University prerequisites
2. A cumulative grade point average of at least a 3.3 and at least a 3.0 in all science courses
3. Completion of prerequisite courses with at least a C in each course, and
4. Acceptable PCAT scores (scores in the 70th percentile or higher are highly desirable).

Students meeting the above requirements must also submit an application through PharmCAS.

See text above for all B.S. degree concentrations regarding University and College of Arts and Sciences requirements.

I. Prerequisite courses for admission to the Pharmaceutical Sciences concentration Biological Sciences courses

BISC 207/BISC 208	Introductory Biology I and II	8
BISC 300	Microbiology	4
BISC 306	General Physiology	3
BISC 316	Physiology Laboratory	3
BISC 442	Vertebrate Morphology	4
Physical, Chemical and Mathematical Science requirements		
CHEM 103/CHEM 104	General Chemistry I and II	8
CHEM 321/CHEM 322	Organic Chemistry I and II	8
PHYS 201/PHYS 202	Introductory Physics I and II	8
MATH 241	Analytical Geometry and Calculus	4

Additional requirements outside the sciences  
ENGL 110 Critical Reading and Writing 3  
3 courses in languages, literature, philosophy, religion, arts 9\*  
3 courses in sociology, psychology, anthropology, political science 9\*

\*These courses fulfill the Thomas Jefferson University Social Sciences and Humanities required electives and must also fulfill the College of Arts and Sciences Group A, B, and C Breadth Requirements. One of these courses must fulfill the University of Delaware multicultural requirement and one must fulfill the College of Arts and Sciences second writing course requirement.

II. Required courses at Thomas Jefferson University

Biochemistry	3
Immunology	3
Molecular Biology	3
Biostatistics	3
Pathophysiology I and II	6
Pharmacology I and II	6
Biopharmaceutics and Principles of Clinical Pharmacokinetics	3

### **BIOLOGICAL SCIENCES (ECOLOGY AND ORGANISMIC BIOLOGY) (BS)**

An Ecology and Organic (EOB) admission committee advises students in the program. Requirements for admission are: 1) 3.0 GPA in prerequisite courses listed below; 2) support of a faculty member for the required research activity. In some cases the committee may interview the student as part of its determination of admission. Application will be in the spring of the sophomore year. Applications are available on the Biology web page.

#### **CURRICULUM CREDITS**

See text above for University and College requirements.

I. Prerequisite courses for admission to the EOB concentration:

BISC 207/BISC 208	Introductory Biology I and II	8
CHEM 103/CHEM 104	General Chemistry	8
CHEM 321	Organic Chemistry	4
MATH 241	Analytic Geometry and Calculus A	4

BISC 302	General Ecology	
OR		
BISC 306	General Physiology	3

II. Required lecture courses:

BISC 302	General Ecology	3
BISC 305	Cell Physiology	
OR		
BISC 401	Molecular Biology of the Cell	3
BISC 306	General Physiology	3
BISC 403	Genetic and Evolutionary Biology	3

III. Required courses in experimental biology: The corresponding lecture is a prerequisite. (THE LECTURE AND THE LAB CANNOT BE TAKEN SIMULTANEOUSLY EXCEPT FOR BISC 312, WHICH MAY BE TAKEN CONCURRENTLY WITH

BISC 302).

Two must be taken; others may be electives

BISC 312	Quantitative Ecology	3
BISC 315	Experimental Cell Biology	3
BISC 316	Experimental Physiology	3
BISC 411	Experimental Molecular Biology of the Cell	3
BISC 413	Experimental Genetic and Evolutionary Biology	3

IV. Senior Thesis 6

BISC 451 - BISC 452 Senior Thesis (3+3 credit hours)

OR

UNIV 401 - UNIV 402 Senior Thesis (3+3 credit hours)

V. Electives from the following groups to total 43 credit hours in the major. Note that many courses have prerequisites. Courses must be taken from a minimum of two of the groups and have approval of the faculty research advisor. One of the elective courses must be from the list of approved 600 level courses based on the primary literature.

#### **A. ECOLOGY:**

BISC 480	Vertebrate Natural History	3
BISC 495	Evolution	3
BISC 637	Population Ecology	3
BISC 641	Microbial Ecology	3
BISC 656	Evolutionary Genetics	3

#### **B. ORGANISMIC BIOLOGY:**

BISC 300	Introduction to Microbiology	4
BISC 442	Vertebrate Morphology	4
BISC 605/BISC 606	Advanced Mammalian Physiology	8
BISC 626/BISC 627	Neuroscience I and II	7
BISC 630	Ichthyology	4
BISC 642	Advanced Vertebrate Anatomy	4
BISC 660	Environmental Physiology	3
BISC 675	Cardiopulmonary Physiology	3

C. Courses in experimental biology not selected to meet the requirement in III:

BISC 312, BISC 315, BISC 316, BISC 411 or BISC 413.

#### **D. APPROVED Electives FROM OTHER DEPARTMENTS**

A total of six credits from a list of approved courses can be applied towards the credits required for the major. Courses on this list are approved by the Undergraduate Programs Committee of the Department of Biological Sciences.

A grade of D (not D-) or better must be obtained

in Chemistry, Physics and Mathematics courses required for all Biological Sciences majors and minor.

VI. Additional requirements outside the Department of Biological Sciences

Credit Hours  
PHYS 201 - PHYS 202 General Physics 8  
CHEM 322 Organic Chemistry 4  
A course in Statistics (STAT) 3

**BIOLOGICAL SCIENCES (CELL & MOLECULAR BIOLOGY & GENETICS) (BS)**

A Cell and Molecular Biology & Genetics (CMG) admission committee advises students in the program. Requirements for admission are: 1) 3.0 GPA in prerequisite courses listed below; 2) support of a faculty member for the required research activity. In some cases the committee may interview the student as part of its determination of admission. Application will be in the spring of the sophomore year. Applications are available on the Biology web page.

**CURRICULUM CREDITS**

University and College requirements.

I. Prerequisite courses for admission to the CMG concentration:

BISC 207/BISC 208 Introductory Biology I and II 8  
CHEM 103/CHEM 104 General Chemistry 8  
CHEM 321 Organic Chemistry 4  
MATH 241 Analytic Geometry and Calculus A 4

One of the following:

BISC 300 Introduction to Microbiology 4  
BISC 302 General Ecology 3  
BISC 306 General Physiology 3

II. Required lecture courses:

BISC 305 Cell Physiology 3  
BISC 401 Molecular Biology of the Cell 3  
BISC 403 Genetic and Evolutionary Biology 3  
CHEM 527 Introductory Biochemistry (or equivalent) 3

III. Required courses in experimental biology:

The corresponding lecture is a prerequisite. (THE LECTURE AND THE LAB CANNOT BE TAKEN SIMULTANEOUSLY).

BISC 315 Experimental Cell Biology  
OR

BISC 411 Experimental Molecular Biology of the Cell 3  
BISC 413 Experimental Genetic and Evolutionary Biology 3

IV. Senior Thesis 6

BISC 451 - BISC 452 Senior Thesis (3+3 credit hours)

OR

UNIV 401 - BISC 402 Senior Thesis (3+3 credit hours)

V. Electives from the following groups to total 43 credit hours in the major. Note that many courses have prerequisites. Courses must be taken from a minimum of two of the groups and have approval of the faculty research advisor. One of the elective courses must be from the list of approved 600 level courses based on the primary literature.

A. GENETICS

BISC 491 Human Molecular Cytogenetics 3  
BISC 654 Biochemical Genetics 3  
BISC 656 Evolutionary Genetics 3  
BISC 658 Developmental Genetics 3  
BISC 693 Human Genetics 3

B. MOLECULAR BIOLOGY AND BIOCHEMISTRY

BISC 602 Molecular Biology of Animal Cells 3  
BISC 679 Virology 3  
CHEM 642 Biochemistry 3

C. CELL BIOLOGY

4/3  
BISC 471 Immunology 3  
BISC 408 Histology (or BISC 617 Electron Microscopy)  
BISC 612 Advanced Cell Biology 3

D. PHYSIOLOGY

BISC 605/BISC 606 Advanced Mammalian Physiology 8  
BISC 626/BISC 627 Neuroscience I and II 7  
BISC 660 Environmental Physiology 3  
BISC 675 Cardiopulmonary Physiology 3

E. BIOINFORMATICS

ANSC 644 Bioinformatics 3  
A computer science course beyond the introductory level

F. APPROVED Electives FROM OTHER DEPARTMENTS

A total of six credits from a list of approved courses can be applied towards the credits

required for the major. Courses on this list are approved by the Undergraduate Programs Committee of the Department of Biological Sciences.

A grade of D (not D-) or better must be obtained in Chemistry, Physics and Mathematics courses required for all Biological Sciences majors and minor.

#### VI. Additional requirements outside the Department of Biological Sciences

##### Credit Hours

PHYS 201 - PHYS 202	General Physics	8
CHEM 322	Organic Chemistry	4
A course in Statistics (STAT)		3

### **BIOLOGICAL SCIENCES (BIOTECHNOLOGY(BBT)) (BS)**

University and College Requirements.  
CURRICULUM CREDITS

#### I. Required lower level Biology courses

BISC 207	Introductory Biology I	4
BISC 208	Introductory Biology II	4
BISC 280	Fundamentals of Biotechnology	1
BISC 300	Introduction to Microbiology	4
BISC 305	Cell Physiology	3
BISC 401	Molecular Biology of the Cell	3
BISC 403	Genetic and Evolutionary Biology	3

#### II. Required lower-level Biology Laboratory courses

Note that for all the two credit labs, the lecture is a prerequisite. (THE LECTURE AND THE LAB CANNOT BE TAKEN SIMULTANEOUSLY.)

BISC 411	Experimental Molecular Biology of the Cell	3
BISC 315	Experimental Cell Biology	3

#### III. Biology Breadth Requirement

Choose at least one from the following courses:

BISC 306	General Physiology	3
BISC 408	Mammalian Histology	4
BISC 471	Immunobiology	3
BISC 492	Human and Mammalian Cytogenetics	3

#### IV. Laboratory Classes

Choose three of the following courses:

BISC 468	Independent Research*	4
BISC 484	Computer-Based Genetics Laboratory	3

BISC 601	Immunochemistry Laboratory	4
BISC 604	Nucleic Acids Laboratory	4
BISC 619	Gene Expression Laboratory	4

\*The four credits of BISC 468 must be taken with the same professor and must be over at least two semesters. An approved summer experience, such as University-sponsored summer research, can be substituted for one semester. UNIV 401 plus UNIV 402 or BISC 451 plus BISC 452 (6 credits total) can also substitute for BISC 468.

#### V. Required Courses from Other Departments

##### Chemistry

CHEM 103/CHEM 104	General Chemistry	8
CHEM 321/CHEM 322	Organic Chemistry	8

One of the following options:

CHEM 527	Introductory Biochemistry	3
or		
CHEM 641	Biochemistry and CHEM 643 Intermediary Metabolism	6

##### Physics

PHYS 201/CHEM 202	Fundamentals of Physics	8
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##### Math

MATH 241	Analytic Geometry and Calculus A	3
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#### VI. Upper Division Requirements

Choose two courses from the following list. (At least one must be a BISC course.)

ANSC 670	Principles of Molecular Genetics
BISC 600	Biotechnology and Molecular Medicine
BISC 602	Molecular Biology of Animal Cells
BISC 605	Advanced Mammalian Physiology
BISC 612	Advanced Cell Biology
BISC 615	Vertebrate Developmental Biology
BISC 654	Biochemical Genetics
BISC 656	Evolutionary Genetics
BISC 665	Eukaryotic Molecular Biology and Genetics
BISC 671	Advances in Immunology
BISC 679	Virology
BISC 693	Human Genetics
CHEM 645	Proteins: Structure and Function
CHEM 646	DNA-Protein Interactions
CHEM 648	Membrane Biochemistry

Any additional laboratory class (IV) taken above the minimum of three may also count towards the upper division requirements (VI).

Other upper division classes may also be



their majors. The interdisciplinary and multidisciplinary nature of the department allows flexibility for students seeking the relationships between their respective majors in other areas and Black American Studies.

Students may choose to pursue a major or a minor in Black American Studies. The major may be completed without a concentration or students may choose to specialize in one of three concentrations.

To declare a major in Black American Studies, a student with a GPA of cumulative 2.0 or higher will be admitted to the major. A grade of C- or better is required for a course to count towards the B.A. degree in Black American Studies. Although some courses are listed in more than one category, a course may only receive credit towards the major in one category.

## BLACK AMERICAN STUDIES (BA)

### CURRICULUM CREDITS

University and College requirements.

### REQUIRED COURSES (19 CREDITS)

BAMS 110	Introduction to Black American Studies	3
BAMS 391	Research Methods in Black American Studies	4
BAMS 205	Contemporary African American Issues	3
or		
BAMS 206	Survey of African American Culture	3
BAMS 134/HIST 134	History of Africa	3
BAMS 304/HIST 325	History of Black America to the Civil War	3
or		
BAMS 306/HIST 326	History of Black America Since the Civil War	3
BAMS 490	Senior Project	3

### ONE COURSE IN EACH OF THE FOLLOWING AREAS (12 CREDITS):

Comparative and Diasporic Studies (3 credits)		
ANTH 333/BAMS 333	Peoples of Africa	3
ARTH 206	Introduction to Art and Architecture in Africa	3
ARTH 203	Art of the Black and African Diaspora	3
HIST 134/BAMS 134	History of Africa	3

HIST 331/BAMS 331	History of the Caribbean I	3
HIST 332/BAMS 332	History of the Caribbean II	3
HIST 395/BAMS 395	Pan Africanism	3
HIST 394	Africa Since 1960	3
HIST 439	Women and Revolution in Africa	3
HIST 440	Seminar in Africa under Colonial Rule	3
POSC 439/BAMS 439	Problems in African Politics	3
POSC 433	African Politics	3
Arts and Humanities (3 credits)		
BAMS 206	Survey of African American Culture	3
BAMS 373	Hip Hop in the Black Community	3
BAMS 307/PHIL 207	Black Thought and Philosophy	3
BAMS 440	Themes in Black American Studies (open to juniors/seniors only)	3
ENGL 344/ BAMS313	African American Literature I	3
ENGL 345/ BAMS345	African American Literature II	3
ENGL 382/ BAMS382	Studies in Multicultural Literature in English	3
PHIL 327/ BAMS327	Race, Gender and Science	3
Social and Behavioral Sciences (3 credits)		
BAMS 205	Contemporary African American Issues	3
BAMS 350	Race and Work in the U.S.	3
BAMS 352	Black Feminist Theory	3
BAMS 381	Black Men in the Streets and the Criminal Justice System	3
BAMS 650	Black Community Studies	3
CRJU 355/BAMS 355	Inequality, Crime, and Justice	3
CRJU 413	Hate Crimes	3
CRJU 444	Capital Punishment and American Culture	3
POSC 322/BAMS 322	Race and Politics	3
POSC 439/BAMS 439	Problems in African Politics	3
PSYC 416/BAMS 416	Psychological Perspectives on Black Americans	3
SOCI 204/BAMS 204	Urban Communities	3
SOCI 215/BAMS 215	Race in Society	3
SOCI 361/BAMS 361	Racial Inequality	3
SOCI 415/BAMS 415	Race, Class, and Gender	3

SOCI 418/BAMS 418 Race, Gender, and Poverty 3  
 UAPP 649/BAMS 649 Civil Rights Law and Policy 3

History (3 credits)  
 HIST 220/BAMS 220 American Civil Rights Movement 3  
 BAMS 304/HIST 325 History of Black America to the Civil War 3  
 BAMS 306/HIST 326 History of Black America since the Civil War 3  
 HIST 331/BAMS 331 History of the Caribbean I 3  
 HIST 332/BAMS 332 History of the Caribbean II 3  
 HIST 334/BAMS 334 African American Women's History 3  
 TOTAL CREDITS FOR THE MAJOR 31

The Black American Studies major is conceived in two ways: one is the general major (outlined above), consisting of 19 required credit hours and 12 credits that fit into four breadth areas: Comparative and Diasporic Studies; Arts and Humanities; Social and Behavioral Sciences; and History.

The second consists of the same required courses for the general major, plus 3 courses (9 credits) in a concentration, plus one elective. The Concentrations allow Black American Studies majors to focus in areas where there is already demonstrated interest and ample courses, and where the additional focus may serve the student's interest in pursuing advanced degrees in journalism, writing and literature, law and public policy.

The Concentration in Black Art, Literature, and Cultural Studies (BALCS) examines artistic representations and creations of people of African descent to discover how identities shape and are shaped by cultural events, preconceptions, norms, and standards, and how in turn these expressive forms affect ongoing developments of cultural life individually, socially, and globally. As such, this concentration allows students to gain a firm footing in the practice of literary and cultural criticism as they become familiar with humanistic inquiry in the discipline of Black Studies. BALCS is designed to enable students to use a variety of sources and interdisciplinary methods to gain an awareness of multiple cultures, subcultures, and values both within and outside the artistic community of

the Diaspora. This concentration thus emphasizes skills in the formal analysis of artistic artifacts, historical inquiry, and cultural contextualization as it pertains to literature, art, music, film, language, and religion in order to connect the reading of culture and texts to their daily lives.

Students who enroll in the Black Art, Literature, and Cultural Studies Concentration must take three (3) courses from among those listed below.

CURRICULUM CREDITS  
 BAMS 107/MUSC 107 History of Rock 3  
 BAMS 203/ARTH 204 Art, Power, and Architecture in Africa 3  
 BAMS 207/MUSC 207 History of Jazz 3  
 BAMS 305/HIST 305 Images of Race and Ethnicity in American Culture 3  
 BAMS 308 Delaware Black History 3  
 BAMS 313/ENGL 344 African American Literature 3  
 BAMS 330 Rhetoric of Black America 3  
 BAMS 331/HIST 331 History of the Caribbean I 3  
 BAMS 332/HIST 332 History of the Caribbean II 3  
 BAMS 333/ANTH 333 Peoples of Africa 3  
 BAMS 345/ENGL 345 African American Literature II 3  
 BAMS 347/ENGL 347 Studies in American Literature (upon approval) 3  
 BAMS 382/ENGL 382 Studies in Multicultural Literature (upon approval) 3  
 BAMS 395/HIST 395 Pan Africanism 3  
 BAMS 440 Themes in Black American Studies 3  
 TOTAL CREDITS 9

The Law, Public Policy and Social Justice concentration focuses students' coursework around issues of law, inequality, social justice, and public policy as it relates to the global experiences of people of African descent. Our social justice courses draw upon sociology's long standing interest in normative patterns as well as questions associated with the fields of anthropology, history, political science, social psychology, economics and law. We draw on these fields for theoretical understanding of matters such as legal studies, political activism, and community service. Law and public policy courses focus on the causes and consequences of the unequal distribution of power, wealth, and status in the U.S. and world economy, and collective attempts to change social arrangements. For students interested

in focusing primarily on social inequality, this concentration offers courses that include dimensions of stratification (race, class, gender); power structure research and social network analysis; the ideologies that justify and criticize inequalities; and the propagation of social movements.

Students who enroll in the Law, Public Policy and Social Justice Concentration must take three (3) courses from among those listed below.

**CURRICULUM CREDITS**

BAMS 204/SOCI 204	Urban Communities	3
BAMS 215/SOCI 215	Race in Society	3
BAMS 220	American Civil Rights Movement	3
BAMS 322/POSC 322	Race and Politics	3
BAMS 355/CRJU 355	Inequality, Crime and Justice	3
BAMS 361/SOCI 361	Racial Inequality	3
BAMS 373	Hip-Hop in the Black Community	3
BAMS 413/CRJU 413	Hate Crimes	3
BAMS 416/PSYC 416	Psychological Perspectives on the Black American	3
BAMS 649/UAPP 649	Civil Rights Law and Policy	3

TOTAL CREDITS 9

The Black Gender Studies concentration focuses on the life experiences of people of African descent in order to understand the complexities of the world, cultures, regions, and academic disciplines through the lens of gender. This concentration will examine issues related to sexuality, the body, race, class, business, health, artistic movements, law, media, sociology, psychology, as well as other academic disciplines in order to study the meaning of "male" and "female" as it relates to social roles and sexual identities.

Students who enroll in the Black Gender Studies Concentration must take three (3) courses from among those listed below.

**CURRICULUM CREDITS**

BAMS 327/PHIL 327	Race, Gender, and Science	3
BAMS 334/HIST 334	African American Women's History	3
BAMS 350	Race and Work in the United States	3
BAMS 352/WOMS 367	Black Feminist	

	Theory	3
BAMS 381	Understanding Black Men in the Streets and Prison	3
BAMS 415/SOCI 415	Race, Class and Gender	3
BAMS 418/SOCI 418	Race, Gender and Poverty	3
BAMS 467/SOCI 467	Race and Sexuality	3
TOTAL CREDITS		9
<b>ELECTIVES FOR ALL CONCENTRATIONS (3 Credits)</b>		

Any one of the following courses will meet this requirement

- BAMS 204/SOCI 204
- BAMS 205
- BAMS 206
- BAMS 220/HIST 220
- BAMS 304/HIST 325
- BAMS 306/HIST 326
- BAMS 307/PHIL 307
- BAMS 327/PHIL 327
- BAMS 331/HIST 331
- BAMS 332/HIST 332
- BAMS 334/HIST 334
- ENGL 344/BAMS 313
- ENGL 345/BAMS 345
- BAMS 350
- CRJU 355/BAMS 355
- BAMS 361/SOCI 361
- BAMS 352
- BAMS 373
- BAMS 381
- ENGL 382/BAMS 382
- CRJU 413
- BAMS 204/SOCI 204
- BAMS 215/SOCI 215
- BAMS 415/SOCI 415
- BAMS 416/PSYC 416
- BAMS 418/SOCI 418
- BAMS 439/POSC 439
- BAMS 440 (open to juniors/seniors only)
- CRJU 444
- UAPP 649/BAMS 649
- BAMS 650
- ARTH 203
- ARTH 206
- BAMS 134/HIST 134
- BAMS 395/HIST 395
- HIST 394
- HIST 439
- HIST 440
- POSC 433

**MINOR IN BLACK AMERICAN STUDIES (18 credits)**

## CURRICULUM CREDITS

### Required Courses (12 credits):

BAMS 110	Introduction to Black American Studies	3
BAMS 134/HIST 134	History of Africa	3
BAMS 205	Contemporary African American Issues	3
Or		
BAMS 206	Survey of African American Culture	3
BAMS 304/HIST 325	History of Black America to the Civil War	3
Or		
BAMS 306/HIST 326	History of Black America since the Civil War	3

### Electives (6 credits)

BAMS 307/PHIL 207	Black Thought and Philosophy	3
BAMS 350	Race and Work in the United States	3
BAMS 352	Black Feminist Theory	3
BAMS 373	Hip-Hop in the Black Community	3
BAMS 381	Black Men in the Streets and the Criminal Justice System	3
BAMS 440	Themes in Black American Studies	3
BAMS 467/SOCI 467	Race and Sexuality	3
BAMS 650	Black Community Studies	3
CRJU 355/BAMS 355	Inequality, Crime, and Justice	3
CRJU 413	Hate Crimes	3
CRJU 444	Capital Punishment and American Culture	3
ENGL 345/BAMS 345	African American Literature II	3
ENGL 382/BAMS 382	Studies in Multicultural Literature in English	3
HIST 331/BAMS 331	History of the Caribbean I	3
HIST 332/BAMS 332	History of the Caribbean II	3
PHIL 327/BAMS 327	Race, Gender and Science	3
POSC 439/BAMS 439	Problems in African Politics	3
PSYC 416/BAMS 416	Psychological Perspectives on Black Americans	3
SOCI 361/BAMS 361	Racial Inequality	3
SOCI 418/BAMS 418	Race, Gender, and Poverty	3
UAPP 649/BAMS 649	Civil Rights Law and Policy	3

## Chemistry and Biochemistry

Telephone: (302) 831-2465

<http://www.udel.edu/chem/index.html>

Faculty Listing: [www.udel.edu/chem/faculty.html](http://www.udel.edu/chem/faculty.html)

The Department of Chemistry and Biochemistry provides five undergraduate degree options: BA in Chemistry, BA in Chemistry Education, BS in Chemistry, BS in Chemistry with concentration in Environmental Chemistry, and a BS in Biochemistry. Honors Degree options are available in the BA in Chemistry, the BA in Chemistry Education, the BS in Chemistry, and the BS in Biochemistry. Minors in Biochemistry or Chemistry are also available.

## CHEMISTRY (BA)

### CURRICULUM CREDITS

University and College Requirements.

### MAJOR REQUIREMENTS

A minimum grade C- is required in each CHEM course required for the BA degree in Chemistry.

CHEM 103/CHEM 104	General Chemistry	8
CHEM 115	Introduction to Chemical Sciences	3
CHEM 220/CHEM 221	Quantitative Analysis and Laboratory	4
or		
CHEM 111/CHEM 112	General Chemistry	6
CHEM 115	Introduction to Chemical Sciences	3
CHEM 120	Quantitative Chemistry	3
CHEM 321/CHEM 322	Organic Chemistry	8
or		
CHEM 331/CHEM 332/ CHEM 333/CHEM 334	Organic Chemistry and Laboratory I and II	10
CHEM 437/CHEM 438	Instrumental Methods and Laboratory	4
CHEM 418/CHEM 419/CHEM 445	Introductory Physical Chemistry and Laboratory	7
or		
CHEM 443/CHEM 444/CHEM 445	Physical Chemistry and Laboratory	7
CHEM 465	Senior Seminar (fall)	1
	One of the following courses:	3
CHEM 410	History of Chemistry	
CHEM 457	Inorganic Chemistry	
CHEM 527	Introductory Biochemistry	
CHEM 620	Analytical Spectroscopy or any CHEM 6xx Course	
Total of CHEM credits required for the degree		38

MATH 241	Analytic Geometry and Calculus A	4
MATH 242	Analytic Geometry and Calculus B (strongly recommended)	4
PHYS 201/PHYS 202	Introductory Physics I and II	8
or		
PHYS 207/PHYS 208	Fundamentals of Physics I and II	8

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree

CREDITS TOTOTAL A MINIMUM OF 124

#### HONORS- CHEMISTRY( BA)

The recipient must complete:

1. All requirements for the Bachelor of Arts degree in Chemistry Education.
2. All of the University's generic requirements for the Honors Baccalaureate degree Note: At least eight of the twelve credits described in the University's generic requirements for the Honors Degree must be in CHEM courses. The remaining four credits must be in a required course in a related technical area, e.g., BISC, MATH, PHYS, EDUC. CHEM courses at the 600-level or higher may be considered as Honors courses.
3. The additional requirement of a grade point index of at least 3.30 in chemistry courses at the time of graduation.

#### CHEMISTRY EDUCATION (BA)

##### CURRICULUM CREDITS

University and College Requirements.

##### MAJOR REQUIREMENTS

CHEM courses to total 30 credits minimum.

CHEM 111/CHEM 112	General Chemistry	6
CHEM 115	Introduction to Chemical Sciences	2
CHEM 120	Quantitative Chemistry	3
or		
CHEM 103/CHEM 104	General Chemistry	8
CHEM 220/CHEM 221	Quantitative Analysis and Laboratory	4
One of the following: 4-8		

CHEM 213 Elementary Organic Chemistry

CHEM 321/CHEM 322 Organic Chemistry  
CHEM 331/CHEM 332/ CHEM 333 Organic

CHEM 437/CHEM 438	Chemistry and Laboratory Instrumental Methods and Laboratory	4
CHEM 418/CHEM 445	Introductory Physical Chemistry and Laboratory	4
or		
CHEM 443/CHEM 445	Physical Chemistry and Laboratory	4
CHEM 214/CHEM 216	Elementary Biochemistry and Laboratory	4
Chemistry courses selected with consent of advisor 0-3		
BISC 207	Introductory Biology I	4
GEOL 107	General Geology	4
MATH 241/MATH 242	Analytic Geometry and Calculus A and B	8
PHYS 201/PHYS 202	Introductory Physics I and II	8

or

PHYS 207/PHYS 208 Fundamentals of Physics I and II 8

EDUC 413 Adolescent Development and Educational Psychology 4

EDUC 414 Teaching Exceptional Adolescents 3

EDUC 419 Diversity in Secondary Education 3

EDUC 420 Reading in the Content Areas 1

EDUC 400 Student Teaching 9

SCEN 491 Teaching Science in Secondary Schools 4

Grade of C- or better required in all required CHEM and EDUC courses and SCEN 491.

To be eligible to student teach, Chemistry Education students must have a GPA of 2.75 in their chemistry major and an overall GPA of 2.5. They must also pass a teacher competency test as established by the University Council on Teacher Education. Students must consult with the teacher education program coordinator to obtain the student application and other information concerning student teacher policies.

CREDITS TOTOTAL A MINIMUM OF 124

#### HONORS- CHEMISTRY EDUCATION (BA)

The recipient must complete:

1. All requirements for the Bachelor of Arts degree in Chemistry Education.
2. All of the University's generic requirements for the Honors Baccalaureate degree Note: At least eight of the twelve credits described in the University's generic requirements for the Honors

Degree must be in CHEM courses. The remaining four credits must be in a required course in a related technical area, e.g., BISC, MATH, PHYS, EDUC. CHEM courses at the 600-level or higher may be considered as Honors courses.

3. The additional requirement of a grade point index of at least 3.30 in chemistry courses at the time of graduation.

## CHEMISTRY (BS)

### CURRICULUM CREDITS UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing  
(minimum grade C-) 3

First Year Experience (FYE) 0-4

University Breadth Requirement 12  
Up to 3 credits from each of the University Breadth Requirement categories may be used to simultaneously satisfy the College of Arts and Sciences Breadth Requirements.

Discovery Learning Experience (DLE) 3

Multi-cultural Courses 3

### COLLEGE REQUIREMENTS

Writing: (minimum grade C-) 3  
A second writing course involving significant writing experience including two papers with a combined minimum of 3,000 words to be submitted for extended faculty critique of both composition and content. This course must be taken after completion of 60 credit hours. Appropriate writing courses are normally designated in the semester's Registration Booklet. (See list of courses approved for Second Writing Requirement.)  
ENGL 410 highly recommended.

Foreign Language: 0-12  
Completion of the intermediate-level course (107 or 112) in a modern foreign language. Number of credits needed and initial placement will depend on number of years of high school study of foreign language. Students with four or more years of high school work in a single modern foreign language may attempt to fulfill the requirement in that language by taking an exemption examination.

COLLEGE OF ARTS AND SCIENCES BREADTH REQUIREMENTS (minimum grade C-)  
The College Breadth Requirements are in

addition to the University Breadth Requirement. Up to 3 credits from each of the University Breadth Requirement categories may be used to simultaneously satisfy these College of Arts and Sciences Breadth Requirements.

A total of twenty-one credits from Groups A, B and C is required with a minimum of six credits in each group. The six credits from each group could be from the same area. 21

Group A Creative Arts and Humanities

Group B History and Cultural Change

Group C Social and Behavioral Sciences

### MAJOR REQUIREMENTS

Minimum 46 credits total in CHEM

CHEM 115 Introduction to Chemical Sciences 3

CHEM 111/CHEM 112 General Chemistry 6

CHEM 120 Quantitative Chemistry 3

CHEM 331/CHEM 332 Organic Chemistry 6

CHEM 333/CHEM 334 Organic Chemistry Majors Laboratory I and II 4

CHEM 443/CHEM 445 Physical Chemistry and Laboratory 4

CHEM 437/CHEM 438 Instrumental Methods and Laboratory 4

CHEM 527 Introductory Biochemistry 3  
or

CHEM 641 Biochemistry 3

CHEM 444/CHEM 446 Physical Chemistry and Laboratory 4

CHEM 457/CHEM 458 Inorganic Chemistry and Laboratory 4

CHEM 465 Seminar (two semesters, fall and spring) 2

Advanced Chemistry course at 600-level or higher 3

CHEM 468 Undergraduate Research (optional) 3

MATH 241/MATH 242/ MATH 243 Analytic Geometry and Calculus A, B and C 12

PHYS 201/PHYS 202 Introductory Physics I and II 8

or

PHYS 207/PHYS 208 Fundamentals of Physics I and II 8

Strongly Recommended:

MATH 302 Ordinary Differential Equations I 3

### ELECTIVES

After required courses are completed sufficient



designated in the semester's Registration Booklet. (See list of courses approved for Second Writing Requirement.) ENGL 410 is highly recommended.

Foreign Language: 0-12

Completion of the intermediate-level course (107 or 112) in a modern foreign language. Number of credits needed and initial placement depends on number of years of high school study of foreign language. Students with four or more years of high school work in a single modern foreign language may attempt to fulfill the requirement in that language by taking an exemption examination.

#### COLLEGE OF ARTS AND SCIENCES BREADTH REQUIREMENTS (minimum grade C-)

The College Breadth Requirements are in addition to the University Breadth Requirement. Up to 3 credits from each of the University Breadth Requirement categories may be used to simultaneously satisfy these College of Arts and Sciences Breadth Requirements.

A total of twenty-one credits from Groups A, B and C is required with a minimum of six credits in each group. The six credits from each group could be from the same area. 21

Group A Creative Arts and Humanities

Group B History and Cultural Change

Group C Social and Behavioral Sciences

#### MAJOR REQUIREMENTS

Minimum 47 credits total in CHEM

CHEM 111/CHEM 112 General Chemistry 6

CHEM 115 Introduction to Chemical Sciences 3

CHEM 120 Quantitative Chemistry 3

CHEM 331/CHEM 332 Organic Chemistry 6

CHEM 333/CHEM 334 Organic Chemistry Majors Laboratory I and II 4

CHEM 342 Introduction to Biochemistry 3

CHEM 418 Introductory Physical Chemistry I 3

or

CHEM 443 Physical Chemistry

CHEM 437/CHEM 438 Instrumental Methods and Laboratory 4

CHEM 641 Biochemistry 3

CHEM 419 Introductory Physical Chemistry II 3

or

CHEM 444 Physical Chemistry

CHEM 445 Physical Chemistry Laboratory 1

CHEM 642 Biochemistry 3

CHEM 643 Intermediary Metabolism 3

Two Advanced Chemistry courses at 600-level 6-8

or

Two Biology courses selected from the following:

BISC 300 Introduction to Microbiology 4

BISC 306 General Physiology 3

BISC 401 Molecular Biology of the Cell 3

BISC 403 Genetic and Evolutionary Biology 3

BISC 601 Immunochemistry 4

BISC 654 Biochemical Genetics 3

BISC 679 Virology 3

CHEM 465 Seminar (two semesters, fall and spring) 2

CHEM 468 Undergraduate Research 3

or

One Biology laboratory course selected from the following: 2-4

BISC 300 Introduction to Microbiology 4

BISC 315 Experimental Cell Biology 2

BISC 316 Experimental Physiology 2

BISC 411 Experimental Molecular Biology 2

BISC 413 Advanced Genetics Laboratory 2

BISC 601 Immunochemistry 4

Related Work

MATH 241 Analytic Geometry and Calculus A 4

MATH 242 Analytic Geometry and Calculus B (strongly recommended) 4

BISC 207/BISC 208 Introductory Biology I and II 8

PHYS 201/PHYS 202 Introductory Physics I and II 8

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

Candidates for a BS in biochemistry must achieve a cumulative GPA of at least 2.00 for all chemistry courses taken. Repeated Chemistry courses are counted only once in the calculation of the Chemistry GPA. The calculation of the chemistry course GPA (2.00 minimum required for graduation) for candidates for the BS degree in Chemistry or Biochemistry will not include

grades earned for lower level disciplinary courses taken after a higher level course in the same discipline has been taken and passed with a grade of C or higher. Likewise, freshman-level courses may not be used by upperclassmen as GPA enhancers after those required for graduation has been taken. CHEM 342 and CHEM 100 will be regarded as exceptions to the foregoing prohibitions, since their subject matter coverage is considerably different than that found in higher level courses.

Example: A grade earned in CHEM 214 subsequent to a C or better grade earned in CHEM 527 (or CHEM 641/CHEM 642) would not be counted in the chemistry GPA calculation for BS chemistry or biochemistry majors.

### **HONORS -CHEMISTRY OR BIOCHEMISTRY (BS)**

The recipient must complete:

1. All requirements for the Bachelor of Science degree in Chemistry or Biochemistry.
2. All of the University's generic requirements for the Honors Baccalaureate degree Note: Courses at the 600-level or higher in chemistry in excess of the 600-level courses required for the BS degree may be considered as Honors courses. Only one 3- or 4-credit required course in a related technical area may be considered as part of the twelve credits described in the University's generic requirements for the Honors Degree.
3. The additional requirement of a grade point index of at least 3.30 in chemistry courses at the time of graduation.

### **MINOR IN BIOCHEMISTRY**

The minor in biochemistry requires 22 credits as follows:

#### **CREDITS**

CHEM 103/CHEM 104 General Chemistry 8  
or  
CHEM 111/CHEM 112/ CHEM 115 General  
Chemistry and Introduction to Chemical Sciences  
9

CHEM 321/CHEM 322 Organic Chemistry  
or  
CHEM 331/CHEM 332/ CHEM 333 Organic  
Chemistry 8

CHEM 641 Biochemistry 3

CHEM 642 Biochemistry  
or  
CHEM 643 Intermediary Metabolism 3  
Students must have a minimum grade of C- in each course counted toward the minor. CHEM 643 is recommended in place of CHEM 642 for those students who have taken BISC 401 Molecular Biology of the Cell.

### **MINOR IN CHEMISTRY**

The minor in chemistry requires a minimum of 19 credits as follows:

#### **CURRICULUM CREDITS**

CHEM 103/CHEM 104 (or CHEM 111/CHEM 112/  
CHEM 115) 8 (or 9)

Any three of the following:

CHEM 220/CHEM 221  
(or CHEM 437/CHEM 438) 4  
CHEM 321  
(or CHEM 331/CHEM 333) 4-5  
CHEM 457/CHEM 458 4  
CHEM 418/CHEM 445  
(or CHEM 443/CHEM 445) 4  
CHEM 527 or CHEM 641 3

Students must have a minimum grade of C- in each course counted toward the minor.

### **Communication**

Telephone: (302) 831-8041  
<http://www.udel.edu/communication/index.html>  
Faculty Listing: [http://www.udel.edu/communication/people\\_faculty.html](http://www.udel.edu/communication/people_faculty.html)

The Communication Department offers an undergraduate major program in Communication, with concentrations in Interpersonal Communication and in Mass Communication. An Honors Degree option is also available.

The major in communication is designed around two central goals: increasing knowledge about communication processes and their impact on society, and developing communication skills and competencies. In pursuing these goals, the Department of Communication has adopted a social and behavioral science orientation toward the study of human communication. All majors study communication in a wide variety of contexts, including interpersonal and mass communication in both mediated and face-to-face settings. A broad spectrum of classes enables students to critically analyze

communication as well as recognize their own ethical responsibilities to self and community. The communication faculty is also committed to turning theory into effective skills for speaking, critical thinking, writing, and media production so that academic knowledge and experience extend beyond the classroom into future opportunities for students.

Students enter this major as communication interest majors. A 2.0 overall GPA is required to declare the communication interest major. Communication interest majors must complete the four core courses: COMM 245, COMM 256, COMM 301 and COMM 330. Based on their GPA in these four courses, the top 100 students will annually be allowed to matriculate into the communication major.

Students who major in communication will work with their assigned faculty advisor to plan a program of courses that leads to the degree of Bachelor of Arts.

**COMMUNICATION (INTERPERSONAL COMMUNICATION) (BA)**

Note: A minimum grade of C- must be earned in all required Communication courses.

**CONCENTRATION: INTERPERSONAL COMMUNICATION**

**CURRICULUM CREDITS**

University and College Requirements.

**MAJOR REQUIREMENTS**

NOTE: All 4XX communication courses may be limited to COMM majors. COMM 245, COMM 256, COMM 301, and COMM 330 comprise the four core courses in the communication interest major.

COMM 245	Mass Communication and Culture	3
COMM 256	Principles of Communication Theory	3
COMM 301	Introduction to Communication Research Methods	3
COMM 330	Communication and Interpersonal Behavior	3
COMM 341	Theories of Interpersonal Communication	3
COMM 350	Public Speaking	3
Three courses (nine credits) chosen from the following list of courses: 9		
COMM 417	Communication and Management of Conflict	

COMM 421	Intercultural Communication
COMM 440	Topics in Interpersonal Communication
COMM 442	Topics in Organizational Communication
COMM 452	Communication and Persuasion
COMM 456	Communication in Organizations
COMM 485	Analysis of Face-to-Face Communication

Six to 18 COMM elective credits 6-18 for a total of not less than 33 nor more than 45 COMM credits. These may be taken from the other concentration, from above listing, or from the following:

Interpersonal Communication Electives

COMM 200	Human Communication Systems
COMM 204	Gender and Communication
COMM 343	Topics: Interpersonal Communication

Politics & Media Communication Electives

COMM 305	Topics: Communication & Politics
COMM 306	Digital Technology in Politics
COMM 319	Topics: Politics and Broadcast Journalism
COMM 340	Politics and the Media
COMM 427	Broadcast News
COMM 444	Global Agenda
COMM 447	National Agenda (cross-listed with POSC447)

Mass Communication Electives

COMM 313	Comm Principles in Advertising
COMM 318	Topics in Mass Communication
COMM 329	Broadcast Newswriting
COMM 486	Multi-Media Literacy

Organizational Communication Electives

COMM 342	Topics in Organizational Communication
COMM 356	Small Group Communication

Public Relations Electives

NOTE: COMM 309 should be taken before any other Public Relations courses with the exception of COMM401.

COMM 309	Introduction to Public Relations
COMM 311	Public Relations Writing
COMM 401	Careers in Communication
COMM 409	Public Relations Campaign Planning
COMM 413	Public Relations Management

### Television Production

COMM 325	Studio Television Production
COMM 326	Field Television Production
COMM 327	TV Production Lab I
COMM 328	TV Production Lab II
COMM 388	Video Production Practicum

### General Electives

COMM 251	Communicating Effectively
COMM 351	Oral Communication Fellows
COMM 364	Internship
COMM 366/COMM 466	Independent Study/Special Problems
COMM 367/COMM 467	Experimental Courses not listed in Catalog
COMM 468	Undergrad Research in Communication
COMM 490, COMM 491	Honors Courses

### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

### COMMUNICATION (MASS COMMUNICATION) (BA)

Note: A minimum grade of C- must be earned in all required Communication courses.

### CONCENTRATION: MASS COMMUNICATION

### CURRICULUM CREDITS

University and College Requirements.

### MAJOR REQUIREMENTS

NOTE: All 4XX communication courses may be limited to COMM majors. COMM 245, 256, 301, and 330 comprise the four core courses in the communication interest major.

COMM 245	Mass Communication and Culture	3
COMM 256	Principles of Communication Theory	3
COMM 301	Introduction to Communication Research Methods	3
COMM 330	Communication and Interpersonal Behavior	3
COMM 345	Legal Issues of the Mass Media	3
COMM 350	Public Speaking	3
COMM 370	Theories of Mass Communication	3

Two courses (six credits) chosen from the following list of courses: 6

COMM 418	Topics in Mass Communication
COMM 423	Communication, Advertising, & the Consumer
COMM 424	Media Message Analysis
COMM 425	Advanced Topics in Politics and Broadcast Journalism
COMM 450	Mass Communication Effects
COMM 452	Communication and Persuasion
COMM 454	Children and the Mass Media
Six to 18 COMM elective credits	6-18

for a total of not less than 33 nor more than 45 COMM credits. These may be taken from the other concentration, from listing above, or from the following:

### Interpersonal Communication Electives

COMM 200	Human Communication Systems
COMM 204	Gender and Communication
COMM 343	Topics: Interpersonal Communication

### Mass Communication Electives

COMM 313	Comm Principles in Advertising
COMM 318	Topics in Mass Communication
COMM 329	Broadcast Newswriting
COMM 486	Multi-Media Literacy

### Politics & Media Communication Electives

COMM 305	Topics: Communication & Politics
COMM 306	Digital Technology in Politics
COMM 319	Topics: Politics and Broadcast Journalism
COMM 340	Politics and the Media
COMM 427	Broadcast News
COMM 444	Global Agenda
COMM 447	National Agenda (cross-listed w/ POSC447)

### Organizational Communication Electives

COMM 342	Topics in Organizational Communication
COMM 356	Small Group Communication
COMM 456	Communication in Organizations

### Public Relations Electives

NOTE: COMM 309 should be taken before any other Public Relations course with the exception of COMM401.

COMM 309	Introduction to Public Relations
COMM 311	Public Relations Writing
COMM 401	Careers in Communication
COMM 409	Public Relations Campaign Planning
COMM 413	Public Relations Program Management

## Television Production

COMM 325	Studio Television Production
COMM 326	Field Television Production
COMM 327	TV Production Lab I
COMM 328	TV Production Lab II
COMM 388	Video Production Practicum

## General Electives

COMM 251	Communicating Effectively
COMM 351	Oral Communication Fellows
COMM 364	Internship
COMM 366/COMM 466	Independent Study/Special Problems
COMM 367/COMM 467	Experimental Courses not listed in Catalog
COMM 468	Undergrad Research in Communication
COMM 490/COMM 491	Honors Courses

## ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

## HONORS- COMMUNICATION (BA)

The recipient must complete:

1. All requirements for the Bachelor of Arts degree in Communication.
2. All of the University's generic requirements for the Honors Baccalaureate degree.
3. Nine of the Honors credits in the major must be at the 300-level or above and must include at least one 400-level COMM course.

## Comparative Literature

Coordinator: Professor Deborah Steinberger  
Foreign Languages and Literatures  
Telephone: (302) 831-2044  
E-mail: steind@udel.edu

Both an undergraduate major and a minor in Comparative Literature are available. The aim of the program in comparative literature is to allow students to study literature in an international and intercultural relationship, across boundaries of nation and language. Comparative literature embraces the study of literary themes, forms, movements and relations, as well as the interrelations of literature and other disciplines. The program offers the student the opportunity,

with the aid of an advisor, to construct a program reflecting individual areas of interest.

Students majoring or minoring in comparative literature must have a command of at least one foreign language at the advanced elective level. It is strongly recommended that majors pursue a second foreign language at least through the intermediate level. Students planning to go on to graduate work in comparative literature would be well advised to include work in a classical language in their program. Majors are expected to make use of their command of foreign languages in comparative literature courses.

In addition to the courses designed specifically for students specializing in comparative literature, the program offers a number of courses in cooperation with other departments (English, Foreign Languages and Literatures, Anthropology, Philosophy, etc.); these courses should be of interest to most students.

## COMPARATIVE LITERATURE (BA)

### CURRICULUM CREDITS

University and College Requirements.

### MAJOR REQUIREMENTS

CMLT 202	Biblical and Classical Literature	3
(ENGL 205 or ENGL 206 or CMLT 316 may be substituted with advisor's approval)		
CMLT 207	Great Writers of the Western World	3
CMLT 208	Great Writers of the Western World	3

Comparative Literature courses or courses in related fields 9  
approved by the advisor.

Nine credits in each of two national literatures studied in the original text with at least three credits at the 400-level. 18

### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

## MINOR IN COMPARATIVE LITERATURE

The minor requires a minimum of 18 credits, as follows:

1. Core courses in comparative literature (6 credits) Two of CMLT 202, CMLT 207, or CMLT 208
2. Foreign literature courses (6 credits).  
Advanced elective-level courses studied in the original text.
3. Advanced English or Advanced CMLT course (3 credits)
4. Approved related area course (3 credits)

Computer and Information Sciences

## DANCE

Telephone: (302) 831-3537

A minor in dance is available for students who have an interest in dance and want a concentration of study in this area to complement their career goals. The minor provides students with the opportunity to study a variety of coursework including, but not limited to, technique, composition and choreography, and elective choices in the historical, cultural, pedagogical, and somatic areas of dance. Additionally, dance minors complete a variable credit capstone experience project.

The minor requires a minimum of 16 credits distributed as follows:

Technique: 6

A minimum of two courses, one of which must be at the 300 level, from the following list:  
DANC 202, DANC 203, DANC 204, DANC 302, DANC 303, DANC 304

Choreography and Performance 3

One course from the following list: DANC 208, DANC 308, DANC 309

Capstone Experience DANC 401 1

Electives 6

Six credits from the following list, chosen in consultation with the minor advisor:  
DANC 101, DANC 206, DANC 305, DANC 306, DANC 307, DANC 310, DANC 311, DANC 312, DANC 400, HESC 251, HESC 120 (Ballroom Dance)

## East Asian Studies

Professor Alice Ba, 461 Smith Hall  
Email: [aliceba@udel.edu](mailto:aliceba@udel.edu)  
Telephone: (302) 831-1937

<http://www.udel.edu/AreaStudies/asia.html>

The East Asian Studies Program at the University of Delaware is an intellectually rigorous, interdisciplinary program that provides students the opportunity to learn about Asia from a variety of perspectives and fields, as well as various ways that the different local, national and regional cultures and systems interact within Asia and with the world. Students may major or minor in East Asian Studies with different language options. The program also offers students an Honors option. An East Asian Studies major or minor is also considered highly complementary to a host of other majors, including foreign language, history, international relations, political science and international business.

Students majoring in East Asian Studies take courses on Asia in several academic disciplines and are encouraged to develop language proficiency and to pursue study abroad opportunities in Asia. Knowledge of Asia - its cultures, peoples, histories, languages and politics - is considered an important resource for any career in our global economy and society. Included among the career paths open to East Asian Studies majors are careers in government, the foreign service, international agencies, business, education, journalism and international law. East Asian Studies majors also often choose to pursue advanced degrees in some aspect of East Asian Studies.

## EAST ASIAN STUDIES (BA)

### CURRICULUM CREDITS

University and College Requirements.

### MAJOR REQUIREMENTS (30 or 33 credit hours)

A minimum grade of C- is required in all courses.

Complete one of the following options (A or B), the core and nine credit hours of additional work.

Option A: Three credit hours at the 200-level or above in Chinese or in Japanese (including CHIN 200, CHIN 205, CHIN 206/JAPN 200, JAPN 205, JAPN 206) 3

OR

Option B: Three credit hours in both Chinese and Japanese at 200-level or above (total 6 credit hours) 6

The core consists of 18 hours of course work:

HIST137 East Asian Civilization: China 3  
 HIST 138 East Asian Civilization: Japan 3  
 PHIL 310 Chinese Religion and  
 Philosophy 3

One course from

ANTH 210 Peoples and Cultures of  
 Southeast Asia 3

or

ANTH 211 Peoples and Cultures of East  
 Asia

One course from

POSC312 Politics of East Asian  
 Development 3

or

POSC429 Southeast Asia and the World

One course from 3

ARTH 233 Art and Architecture in China

ARTH 237 Art of Tibet

MUSC 206 Music of China

Nine Credit Hours of Additional Course Work:

These nine credit hours must come from at least two different departments. Note that all cross-listed courses are tied to the instructor's home department, e.g. a HIST/WOMS course, if taught by a History instructor, counts as a History course. If uncertain, students should consult with the program director. Any course taken to meet one of the core requirements noted above will not count here. (e.g. POSC429, if chosen to satisfy the core requirement above will not count for the "nine credit hours of additional course work.") The course options include, among others: 9

ANTH 210 Peoples and Cultures of  
 Southeast Asia

ANTH 211 Peoples and Cultures of East Asia

ANTH 310 Asian Women's Lives

ANTH 312 Asian Women in the Globalized  
 Workplace

ANTH 313 New Rich in Asia

ARSC 130 East Asia in Film (1-3 cr.)

ARSC 296 Honors Colloquium (only when  
 East Asia related)

ARTH 233 Art of China (if not selected as  
 required course above)

ARTH 237 Art of Tibet (if not selected as  
 required course above)

ARTH 445 Seminar in Asian Art and  
 Architecture

ARTH 456 Contemporary Architecture, Cross  
 Cultural Dialogues &  
 Transnational Practices

CRJU 467 Crime and Criminal Justice in  
 East Asia

ENGL 386 Asian America: Culture and  
 History

FLLT 321 Topics: Chinese Literature in  
 Translation

FLLT 328 Modern Japanese Literature

FLLT 330 Chinese Women Writers

FLLT 331 Introduction to Chinese Films

FLLT 360 Japanese Visual Culture

FLLT 338 Introduction to Japanese Film

FLLT 380 Topics: Japanese Culture in  
 Translation

HESC 120 Taiji (Tai Chi) or Chinese Wushu  
 (1 cr.)

HIST 268 Seminar (only when East Asia  
 related)

HIST 270 History of Modern Asia

HIST 365 Topics in East Asian History

HIST 367 (when Asian content)\*

HIST 368 Modern China: 1600-1920s

HIST 369 China Since 1900

HIST 370 History of Modern Japan

HIST 371 Post-war Japan

HIST 372 Popular Culture in Urban Japan

HIST 390 History of Modern Southeast Asia

HIST 391 World War II in Asia and the  
 Pacific

HIST 392 Buddhism and Politics in Modern  
 Asia.

HIST 393 History of Modern Vietnam

HIST 479 Seminar: Topics in Asian History

MUSC 206 Music of China (if not selected as  
 a required course)

PHIL 309 Indian Religion and Philosophy

PHIL 367 Comparative Philosophy (when

Asia-related)

POSC 312 Politics of East Asian  
 Development (if not selected as a required  
 course)

POSC 427 Politics in China

POSC 429 Southeast Asia and the World (if  
 not selected as a required  
 course)

POSC 443 China and the World

\*May be repeated if topics vary.

For approval of independent studies and special problems, and for course substitutions in all the East Asian Studies degree programs, contact the East Asian Studies program director before registering for them.

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TOTOTAL A MINIMUM OF 124

## HONORS - EAST ASIAN STUDIES (BA)

The requirements for the Honors BA in East Asian Studies include:

1. All requirements for the BA in East Asian Studies.
2. All the University's generic requirements for the Honors Degree. The Honors credits in the major shall come from at least two different participating departments, and shall include at least two courses at the 300-level or above.
3. The cumulative grade point average for all courses in major must be at least 3.400.
4. For the Honors Degree with Distinction in East Asian Studies, the six credit hours of thesis would be in addition to the 31 or 32 credit hours required for the major, to yield a total of 37 or 38 credit hours.

## MINOR IN EAST ASIAN STUDIES

This interdisciplinary minor offers students the opportunity to enhance their major with 18 credit hours of Asia-related coursework. Students have the option of an East Asian Studies Minor Without Language or East Asian Studies Minor With Language.

## EAST ASIAN STUDIES WITHOUT LANGUAGE

Number of credits required: 18

Required courses:

### A. Introductory Courses:

6 credits in two different disciplines from the following courses in the humanities. (NOTE: CHIN, FLLT, and JAPN courses are all from a single discipline/department).

ARSC 136	East Asian Film*
ARTH 233	Art of China
ARTH 237	Art of Tibet (if not selected as a required course)
CHIN 208	Contemporary Chinese Culture I
FLLT 321	Topics: Chinese Literature in Translation
FLLT 328	Topics: Japanese Literature in Translation
FLLT 330	Chinese Women Writers
FLLT 331	Introduction to Chinese Films
FLLT 338	Introduction to Japanese Films
FLLT 360	Japanese Visual Culture
FLLT 380	Topics: Japanese Culture in Translation
FLLT 381	Topics: Chinese Culture in Translation
JAPN 208	Contemporary Japanese Culture I

MUSC 206	Music of China
PHIL 309	Indian Religion and Philosophy
PHIL 310	Chinese Religion and Philosophy

6 credits from the following courses in the social sciences:

ANTH 210	Peoples and Cultures of Southeast Asia
OR	
ANTH 211	Peoples and Cultures of East Asia
HIST 137	East Asian Civilizations: China
HIST 138	East Asian Civilizations: Japan
HIST 270	History of Modern Asia
POSC 312	East Asian Political Systems

### B. Advanced Courses:

6 credits of advanced course work that includes, among others:

ANTH 310	Asian Women's Lives
ANTH 312	Asian Women in the Globalized Workplace
ANTH 313	New Rich in Asia
ARTH 445	Seminar in Asian Art
CHIN 455	Selected Authors and Works in Chinese
CRJU 467	Crime & Criminal Justice in East Asia
ENGL 381	Asian American Women: Culture and History
ENGL 382	Literature and History of Asian America
FLLT 328	Modern Japanese Literature
FLLT 330	Chinese Women Writers
HIST 365	Topics in East Asian History*
HIST 367	(only when Asia related)*
HIST 369	China Since 1900
HIST 370	History of Modern Japan
HIST 371	Post-war Japan
HIST 372	Popular Culture in Urban Japan
HIST 391	World War II in Asia and the Pacific
HIST 392	Buddhism and Politics in Modern Asia
HIST 393	History of Modern Vietnam
HIST 479	Seminar in Asian History*
JAPN 455	Selected Authors, Works and Themes
PHIL 367	Comparative Philosophy (when Asia related)
POSC 427	Politics in China
POSC 429	Southeast Asia and the World
POSC 443	China and the World

\*May be repeated if topics varied.

For approval of Independent Studies and Special Problems courses and for course substitutions in all the East Asian Studies degree programs,

please contact the Director of East Asian Studies before registering for them. This course list will be updated from time-to-time. A minimum of C- is required in all courses.

### EAST ASIAN STUDIES WITH LANGUAGE

The minor with language consists of the above listed 18 credits of requirements plus completion of either CHIN 107 or JAPN 107 or their equivalents in transfer credit or proficiency examination.

### Economics

Telephone: (302) 831-2563  
<http://www.be.udel.edu/economics>

The Bachelor of Arts in Economics and Economics Education are offered by the Lerner College of Business and Economics. Please refer to [www.lerner.udel.edu/economics](http://www.lerner.udel.edu/economics) for the description and requirements for the majors.

### English

Telephone: (302) 831-2361  
<http://www.english.udel.edu>  
Faculty Listing: [http://www.english.udel.edu/faculty\\_profiles.htm](http://www.english.udel.edu/faculty_profiles.htm)

The English Department has a widely varied undergraduate program. Undergraduates concentrate in literary studies, film, professional writing, creative writing, ethnic and cultural studies, or drama, or they may elect the program in English education. Students may change their concentration at any time. To be eligible to student teach in the English education program, students must maintain a minimum overall grade point index of 2.75 and 3.0 in the major.

The literary studies concentration includes courses in literature from Britain, America, and around the world. The film concentration includes courses in history and theory of film as well as film and literature, Black cinema, and other subjects. The concentration in professional writing is designed to prepare students for positions as professional writers or editors in industry and government. This concentration requires an internship. The creative writing concentration offers students the opportunity to take courses in scriptwriting, poetry writing, and fiction writing as well as literature courses

in these genres. The ethnic and cultural studies concentration emphasizes multicultural literatures in the Americas, folklore, and media studies. The drama concentration allows students to earn the English degree with an emphasis on the study of theatre and literature. The major in English education prepares students to teach English in the secondary schools (grades 7-12). Graduates of this program receive the BA in English and are eligible for teacher certification in 27 states and the Overseas Dependent Schools System.

The department offers a minor in literary studies and offers a number of courses that are part of the minor in journalism. The department also works with an interdisciplinary minor in interactive media. A 4+1 program in teaching English as a second language allows students to do graduate work as part of their undergraduate program and attain a master's degree in TESL in five years.

The department sponsors a number of readings and lectures throughout the academic year, publishes the literary magazine, *Caesura*, and has an active chapter of Sigma Tau Delta, the national English honor society.

### ENGLISH (LITERARY STUDIES) (BA)

#### CURRICULUM CREDITS

University and College requirements.

#### MAJOR REQUIREMENTS

The following five courses: 15  
ENGL 101 Tools of Textual Analysis  
ENGL 102 Texts in Time  
ENGL 204 American Literature  
ENGL 205 British Literature to 1660  
ENGL 206 British Literature 1660-Present

A course in cultural diversity (ENGL 202, ENGL 214, ENGL 215, ENGL 344, ENGL 345, ENGL 348, ENGL 349, ENGL 376, ENGL 378, ENGL 380, ENGL 381, ENGL 382) 3

Eighteen credits of English, at least twelve of which must be at the 300-level or above. All courses offered by the English Department, except those designed for non-majors, will satisfy this requirement. 18

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

### **ENGLISH (PROFESSIONAL WRITING) (BA)**

#### **CURRICULUM CREDITS**

University and College requirements.

#### **MAJOR REQUIREMENTS**

The following six courses 18

ENGL 101 Tools of Textual Analysis  
ENGL 102 Texts in Time  
ENGL 204 American Literature  
ENGL 205 OR ENGL 206 British Literature  
to 1660 OR British Literature 1660-Present  
ENGL 222 Introduction to Professional  
Writing  
ENGL 464 Internship in Professional  
Writing

Four of the following courses 12

ENGL 306 Topics in Writing  
ENGL 312 Written Communications in  
Business  
ENGL 394 English Language: Rhetorical and  
Cultural Contexts  
ENGL 410 Technical Writing  
ENGL 411 Rhetoric of the Professions  
ENGL 412 Publication Projects  
ENGL 413 Topics in Professional Writing  
ENGL 414 Editing  
ENGL 416 Designing Online Information

Six additional English credits 6

#### **ELECTIVES**

After required courses are completed, sufficient  
elective credits must be taken to meet the  
minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

### **ENGLISH (CREATIVE WRITING) (BA)**

#### **CURRICULUM CREDITS**

University and College Requirements.

#### **MAJOR REQUIREMENTS**

The following five courses 15

ENGL 101 Tools of Textual Analysis  
ENGL 102 Texts in Time  
ENGL 204 American Literature  
ENGL 205 British Literature to 1660  
ENGL 206 British Literature  
1660-Present

Two of the following courses 6

ENGL 207 Introduction to Poetry  
ENGL 208 Introduction to Drama  
ENGL 210 Introduction to the Short  
Story

Two of the following workshops 6

ENGL 303 Scriptwriting  
ENGL 304 Poetry Writing  
ENGL 305 Fiction Writing  
ENGL 306 Topics in Writing  
ENGL 404 Advanced Poetry Writing  
ENGL 405 Advanced Fiction Writing

Nine credits of upper-division literature (ENGL  
320 - ENGL 390) 9

#### **ELECTIVES**

After required courses are completed, sufficient  
elective credits must be taken to meet the  
minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

### **ENGLISH (DRAMA) (BA)**

#### **CURRICULUM CREDITS**

University and College Requirements.

#### **MAJOR REQUIREMENTS**

The following six courses 18

ENGL 101 Tools of Textual Analysis  
ENGL 102 Texts in Time  
ENGL 205 British Literature to 1660  
ENGL 208 Introduction to Drama  
ENGL 324 Shakespeare  
ENGL 372 Studies in Drama  
or  
ENGL 472 London Theatre or Irish Drama in  
Performance (offered through study abroad)

ENGL 303 Scriptwriting 3

or

One of the following courses in the Theater  
Department: THEA 200, THEA 202, THEA 203,  
THEA 204, THEA 207, THEA 209, THEA 226, and  
THEA 300 - THEA 311

Fifteen additional English credits, at least nine  
of which must be at the 300-level or above (and  
excluding ENGL 280-290). 15

Since ENGL 372 and ENGL 472 have variable  
content and may be taken more than once  
if topics vary, after a section of one of these  
courses has been taken to fulfill the requirement  
above, subsequent sections may count towards

these fifteen English credits.

Six additional credits of drama-related electives in the Theater Department 6

These courses would have to be approved by the student's English Department advisor, who would be a member of the Drama Concentration faculty. Students may substitute MUSC 103 or MUSC 104 for one of these courses.

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

### **ENGLISH (ETHNIC AND CULTURAL STUDIES) (BA)**

#### CURRICULUM CREDITS

University and College requirements.

#### MAJOR REQUIREMENTS

The following eight courses: 24

ENGL 101 Tools of Textual Analysis  
ENGL 102 Texts in Time  
ENGL 204 American Literature  
ENGL 206 British Literature 1660-Present  
ENGL 215 Introduction to Ethnic and Cultural Studies

ENGL 300 Texts and Contexts  
ENGL 376 World Literature  
ENGL 382 Studies in Multicultural Literature

One three-credit course in the English Department, drawn from a list of courses approved by the faculty of the concentration OR a three-credit course in the department of Anthropology, Art, Art History, Foreign Languages and Literatures, History, Political Science, or Sociology and Criminal Justice approved by the student's academic advisor or the director of the concentration. 3

Nine additional English credits at the 300- or 400-level. 9

Since ENGL 382 has variable content and may be taken more than once if topics vary, after the course has been taken to fulfill the requirement above, subsequent sections of ENGL 382 may count towards these three English courses.

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

### **ENGLISH (FILM) (BA)**

#### CURRICULUM CREDITS

University and College Requirements.

#### MAJOR REQUIREMENTS

The following two courses: 6

ENGL 101 Tools of Textual Analysis  
ENGL 102 Texts in Time

Three of the following courses: 9

ENGL 204 American Literature  
ENGL 205 British Literature to 1660  
ENGL 206 British Literature 1660-Present  
ENGL 208 Introduction to Drama  
ENGL 209 Introduction to the Novel  
ENGL 210 Introduction to the Short Story

The following four courses: 12

ENGL 217 Introduction to Film  
ENGL 317 Film History  
ENGL 318 Studies in Film (variable content, may be repeated once)  
ENGL 417 Film Theory and Criticism

Nine additional English credits at the 300- or 400-level. 9

With the permission of the student's academic advisor or the director of the concentration, students may substitute up to six relevant credits in Art, Art History, Foreign Languages and Literatures, History, or Political Science for up to six of these nine credits.

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

### **ENGLISH EDUCATION (BA)**

#### CURRICULUM CREDITS

University and College requirements.

#### MAJOR REQUIREMENTS

ENGL 101 Tools of Textual Analysis 3  
ENGL 102 Texts in Times 3  
ENGL 204 American Literature 3  
ENGL 205 British Literature to 1660 3  
ENGL 206 British Literature 1660-Present 3

A course in cultural diversity 3

(ENGL 202, ENGL 214, ENGL 215, ENGL 344, ENGL 345, ENGL 348, ENGL 349, ENGL 378,

ENGL 380, ENGL 381, ENGL 382)

ENGL 324 Shakespeare 3  
ENGL 294 English Language: Grammar and Usage 3  
ENGL 394 English Language: Rhetorical and Cultural Contexts 3  
ENGL 376 World Literature 3

A course in writing taken from the following options: 3  
ENGL 301 - ENGL 312, ENGL 316, ENGL 404 - ENGL 415

A course in contemporary literature, taken from the following options: 3  
ENGL 207, ENGL 208, ENGL 209, ENGL 210, ENGL 212, ENGL 341, ENGL 342, ENGL 345, ENGL 348, ENGL 353, ENGL 356.

In addition, the English Education program will designate variable topics courses (e.g., ENGL 480) as fulfilling this requirement when the content is appropriate.

The following courses:

EDUC 413 Adolescent Development and Educational Psychology 4  
EDUC 414 Teaching Exceptional Adolescents 3  
EDUC 419 Diversity in Secondary Education 3  
EDUC 400 Student Teaching 9  
EDUC 420 Reading in the Content Area 1  
ENGL 482 Seminar in Teaching English I 3  
ENGL 483 Seminar in Teaching English II 3  
ENGL 481 Teaching English in Secondary School 3

The following courses:

One course in fine arts taken through the Art History, Theater, or Music Department 3

One course in public speaking or performance taken from the following options: 3  
COMM 252, COMM 212, COMM 350; THEA 102, THEA 200, THEA 204, THEA 206, THEA 226, THEA 360

One course in American history taken from the following options: 3  
HIST 220, HIST 221, HIST 278, HIST 300-328, HIST 459

One course in non-western history taken from the following options: 3  
HIST 103, HIST 104, HIST 130, HIST 131, HIST

136, HIST 137, HIST 138, HIST 270, HIST 302, HIST 368, HIST 369, HIST 370, HIST 371, HIST 372, HIST 377, HIST 378, HIST 380, HIST 381, HIST 391, HIST 392, HIST 393, HIST 444, HIST 479

One course in modern sociocultural studies taken from the following options: 3  
ANTH 101, ANTH 222, ANTH 223, ANTH 224, ANTH 225, ANTH 226, ANTH 227, ANTH 255, ANTH 401; BAMS 110, BAMS 205, BAMS 215, BAMS 305, BAMS 322, BAMS 355, BAMS 361, BAMS 415; POSC 222, POSC 227; SOCI 201, SOCI 202, SOCI 203, SOCI 204, SOCI 205, SOCI 206, SOCI 207, SOCI 208, SOCI 209, SOCI 210, SOCI 211, SOCI 212, SOCI 213, SOCI 302, SOCI 331, SOCI 343, SOCI 356, SOCI 360, SOCI 401; WOMS 201, WOMS 216, WOMS 222, WOMS 2340, WOMS 260, WOMS 363, WOMS 389; HDFS 202, HDFS 230, HDFS 333; CSCC 355

LING 101 Introduction to Linguistics 3

A grade of C- or better is required in all required ENGL, EDUC and LING courses.

To be eligible to student teach, English Education students must have a GPA of 3.0 in their English major and an overall GPA of 2.75. They must also pass a teacher competency test as established by the University Council on Teacher Education. Students must consult with the teacher education program coordinator to obtain the student teaching application and other information concerning student teaching policies.

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

#### HONORS - ENGLISH (BA)

Eligible students may elect to pursue the Honors degree in English or the Degree with Distinction. To earn an Honors BA Degree in English (all concentrations) or in English Education, the recipient must complete:

1. All of the requirements for the BA degree in English (and, where appropriate, concentration requirements) or in English Education.
2. All of the University's generic requirements for the Honors Degree.
3. Nine of the Honors credits in the major must

be in ENGL courses at the 300 level or above, and these must include at least one ENGL 480 seminar course.

## MINOR IN ENGLISH

The following five courses: 15

ENGL 101	Tools of Textual Analysis
ENGL 102	Texts in Time
ENGL 204	American Literature
ENGL 205	British Literature to 1660
ENGL 206	British Literature 1660-Present

Three additional English credits at the 300-level or above. 3

## European Studies

Director: Dr. Nancy Nobile  
Telephone: (302) 831-4101  
E-mail: [nobile@udel.edu](mailto:nobile@udel.edu)  
[www.flit.udel.edu/continental\\_european.html](http://www.flit.udel.edu/continental_european.html)

European Studies is an interdisciplinary major that blends the humanities and the social sciences. Offered jointly by the departments of History, Political Science, and Foreign Languages and Literatures, it stresses comprehensive knowledge of a particular European country through study of its language, literature, history, political institutions, and international relations. The major also encourages students to take courses in philosophy, art history, music and geography, thereby fostering multifaceted understanding of the target country within its general European context.

Students enrolled in this program will gain the tools they will need in such future undertakings as graduate school, government or other international agencies, international law, or commercial enterprises with an international orientation.

Students in other majors who wish to change their major to European Studies must have a minimum grade point average of 2.3. Students transferring into the major from outside the University of Delaware will have their transcripts evaluated on a case-by-case basis.

Study abroad is strongly recommended for students in this program.

## EUROPEAN STUDIES (BA)

A minimum grade of C- is required in all courses.

## CURRICULUM

University and College requirements.

## MAJOR REQUIREMENTS

Foreign Languages and Literatures:  
12 credit hours of work at the 200-level and above in a European foreign language (French, German, Italian, Russian, or Spanish), as follows:  
3 credits at the 200- level  
3 credits at the 200- or 300- level  
3 credits in European literature at the 300- level  
3 credits in European civilization at the 300- or 400- level

History:  
12 credit hours of work in History courses, as follows:  
3 credit hours of HIST101 or HIST102, Western Civilization  
3 additional credits of History at the 200-, 300- or 400- level  
6 additional credits of History at the 300- or 400- level

The 200-, 300-, and 400- level History courses will be drawn from courses such as the following, depending on the student's specialization: HIST 210, HIST 241, HIST 245, HIST 250, HIST 339, HIST 342, HIST 343, HIST 344, HIST 345, HIST 346, HIST 347, HIST 348, HIST 350, HIST 351, HIST 352, HIST 353, HIST 354, HIST 355, HIST 356, HIST 357, HIST 358, HIST 359, plus 400- level History courses, with the prior approval of the advisor

Political Science and International Relations:  
12 credit hours of work in Political Science courses, as follows:  
POSC 270 Comparative Politics  
One of the following two courses:  
POSC 310 European Governments  
POSC 372 East Central European Politics  
Two of the following courses  
POSC 432 Political Systems of the Post-Soviet Union  
POSC 441 Problems of Western European Politics by country  
POSC 442 Problems of Western European Politics  
POSC 300- or 400- level Topics courses with European content, as approved by the program advisor

9 credit hours of work in any combination of courses in the foreign language, History, Political Science, or other related fields (such as Art History, Geography, Music), all with the prior consent of the student's advisor. The Honors thesis or Degree with Distinction thesis can be included in this category.

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

#### HONORS- EUROPEAN STUDIES (BA)

The requirements for the Honors BA in European Studies are:

1. All requirements for the BA in European Studies.
2. All the University's generic requirements for the Honors Degree. The Honors credits in the major shall come from at least two different participating departments, and shall include at least two courses at the 300-level or above.
3. The cumulative grade point average for all courses in the major must be at least 3.400.

#### Fashion and Apparel Studies

Telephone: (302) 831-8714  
E- mail: fashion-studies@udel.edu  
<http://www.udel.edu/fash>

The Department of Fashion and Apparel Studies (FASH) prepares students to thrive in the fast paced field of fashion. Relevant curriculums address the conceptualization, design, pre-production, planning, promotion and distribution of apparel and related products through two undergraduate major courses of study. Examining the social, psychological, historical and cultural influences on fashion, as well as providing a basic understanding of textile materials and production enriches our academic programs. An industry-oriented approach is emphasized.

The Apparel Design major focuses on trend research, conceptualization and pre-production of products for apparel-related industries that meet the functional, expressive, and aesthetic needs and desires of the consumer.

The Fashion Merchandising major addresses the planning, production, promotion and distribution of products in fashion industries to meet consumer need and demand. An Honors Degree option is available for each major.

Students in both majors can benefit from the Department of Fashion and Apparel Studies' collaboration with the Center for Historic Architecture and Design. Opportunities are available for students interested in material culture and preservation as they relate to apparel design, historic costume, dress and culture, and contemporary consumer behavior.

Students who wish to transfer from another major in the University are advised to contact the Department office regarding application policies and procedures.

#### APPAREL DESIGN (BS)

Both the APD and FM curricula consist of a core supplemented by courses specific to each major, facilitating a double major or transfer from either major to the other.

#### CURRICULUM CREDITS

##### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing  
(minimum grade C-) 3  
First Year Experience 0-4  
Breadth Requirements 12  
Discovery Learning Experience 3  
Satisfied with FASH 419 Social-Psychological  
Aspects of Clothing  
Multi-Cultural Course 3

Some University requirements may be met by your major requirements. See your advisor for a planning guide.

#### COLLEGE REQUIREMENTS

English Writing course 3  
Selected from courses approved for Arts and Sciences second writing requirement.

Two Modern foreign language courses 4-8  
Students with fewer than two high school years of a particular foreign language will be placed in a 105 language course and will then take 105-106. Students with two or three years of a particular language will be placed in a 106 language course and will then take 106-107. Students with more than four years will be placed in a 107 language course and, upon completing 107, will be advised, but not required, to take a 200-level

language course. Students with four or more high school years of a foreign language may attempt to fulfill the requirement by taking an exemption examination and will then be advised, but not required, to take a 200-level language course.

#### BREADTH REQUIREMENTS

##### Creative Arts and Humanities

FASH 133 Fashion Art Studio 3  
 Nine Credits selected from Art (ART), Art History (ARTH), and/or Theatre (THEA) 9

##### History and Cultural Change

Three credits selected from approved list 3  
 FASH 214 Costume History Before 1600  
 or  
 FASH 224 Clothing, Design and Production Since 1600 3

##### Social and Behavioral Sciences

PSYC 100 General Psychology 3  
 SOCI 201 Introduction to Sociology 3  
 ECON 151 Introduction to Microeconomics: Prices and Markets 3

##### Mathematics, Natural Sciences, and Technology

Math 114 College Mathematics and Statistics

or

Math 115 Pre-Calculus

or

Higher level/equivalent Higher level/  
 equivalent Mathematics Course 3

CHEM 101 General Chemistry 4  
 CHEM 102 General Chemistry 4  
 FASH 215 Fundamentals of Textiles I 3  
 FASH 220 Fundamentals of Textiles II 3

#### APPAREL DESIGN CORE

COMM 255 Fundamentals of Communication  
 or

COMM 212 Oral Communication in Business 3

FASH 114 Fashion Style and Culture 3

FASH 218 Fashion Merchandising 3

FASH 325 Multimedia Fashion Presentations 3

FASH 365 Fashion Merchandising and Apparel Design Seminar 1

FASH 419 Social-Psychological Aspects of Clothing 3

FASH 455 Global Apparel and Textile Trade and Sourcing 3

FASH 210 Seminar on Fashion Sustainability 3

FASH 380 Product Development 3

DEPARTMENT CORE CURRICULUM COURSE CREDITS TOTAL 25

#### ADDITIONAL APPAREL DESIGN CURRICULUM

##### CURRICULUM CREDITS

##### MAJOR REQUIREMENTS

Courses selected from: 6  
 MISY 160, ACCT 352; BUAD 301, BUAD 309, BUAD 471, BUAD 473, BUAD 474; ECON 152  
 FASH 122 Apparel Product Assembly 3  
 FASH 221 Apparel Structures 3  
 Additional Costume History course 3  
 FASH 233 Fashion Drawing and Rendering 3  
 FASH 314 Apparel Design by Flat Pattern 3  
 FASH 324 Apparel Design by Draping 3  
 FASH 333 Fashion Forecasting and Design 3  
 FASH 421 Professional Portfolio Development 1  
 FASH 424 Apparel Collection Development 3  
 FASH 433 Product Development & Management Studio 3

##### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credits required for the degree.

May include Military Science, Music, or Physical Education (Only two credits of activity-type Physical Education and four credits of Music ensemble and four credits of 100- and 200-level courses in Military Science/Air Force may be counted toward the degree).

CREDITS TOTAL A MINIMUM OF 121

#### FASHION MERCHANDISING (BS)

Both the APD and FM curricula consist of a core supplemented by courses specific to each major, facilitating a double major or transfer from either major to the other.

##### CURRICULUM CREDITS

University Requirements

ENGL 110 Critical Reading and Writing

(minimum grade C-) 3  
 First Year Experience 0-4  
 Breadth Requirements 12  
 Discovery Learning Experience 3  
 Satisfied with FASH 419 Social-Psychological  
 Aspects of Clothing  
 Multi-Cultural Course 3

Some University requirements may be met by  
 your major requirements. See your advisor for a  
 planning guide.

#### COLLEGE REQUIREMENTS

ENGLISH WRITING COURSE 3  
 Selected from courses approved for Arts and  
 Sciences second writing requirement.

Two Modern Foreign Language Courses 4-8  
 Students with fewer than two high school years  
 of a particular foreign language will be placed in  
 a 105 language course and will then take 105-106.  
 Students with two or three years of a particular  
 language will be placed in a 106 language  
 course and will then take 106-107. Students with  
 more than four years will be placed in a 107  
 language course and, upon completing 107, will  
 be advised, but not required, to take a 200-level  
 language course. Students with four or more  
 high school years of a foreign language may  
 attempt to fulfill the requirement by taking an  
 exemption examination and will then be advised,  
 but not required, to take a 200-level language  
 course.

#### BREADTH REQUIREMENTS

Creative Arts and Humanities  
 Three credits selected from approved list 3  
 FASH 133 Fashion Art Studio 3

History and Cultural Change  
 Three credits selected from approved list 3  
 FASH 214 Costume History Before 1600  
 or  
 FASH 224 Clothing, Design and Production  
 since 1600 3

Social and Behavioral Science  
 PSYC 100 General Psychology 3  
 SOCI 201 Introduction to Sociology 3  
 ECON 151 Introduction to Microeconomics:  
 Prices and Markets 3  
 ECON 152 Introduction to  
 Macroeconomics 3

Mathematics, Natural Sciences, and  
 Technology

MATH 114 College Mathematics and  
 Statistics  
 or  
 MATH 115 Pre-Calculus  
 or  
 Higher level/equivalent Math course Higher  
 level/equivalent Mathematics Course 3  
 CHEM 101 General Chemistry 4  
 CHEM 102 General Chemistry 4  
 FASH 215 Fundamentals of Textiles I 3  
 FASH 220 Fundamentals of Textiles II 3

#### FASHION MERCHANDISING CORE

COMM 255 Fundamentals of Communication  
 or  
 COMM 212 Oral Communication in  
 Business 3  
 FASH 114 Fashion Style and Culture 3  
 FASH 218 Fashion Merchandising 3  
 FASH 325 Multimedia Fashion  
 Presentations 3  
 FASH 365 Fashion Merchandising and  
 Apparel Design Seminar 1  
 FASH 419 Social-Psychological Aspects of  
 Clothing 3  
 FASH 455 Global Apparel and Textile Trade  
 and Sourcing 3  
 FASH 210 Seminar on Fashion  
 Sustainability 3  
 FASH 380 Product Development 3

DEPARTMENT CORE CURRICULUM COURSE  
 CREDITS TOTAL 25

#### HONORS- APPAREL DESIGN (BS)

The recipient must complete:

1. All requirements for the Bachelor of Science  
 degree in Apparel Design.
2. All the University's generic requirements for  
 the Honors Baccalaureate Degree. Within these  
 requirements, the twelve (12) honors credits  
 earned in courses in the Department of Fashion  
 and Apparel Studies or in closely related areas  
 outside the Department must be approved by  
 the student's advisor. Of these, a minimum of six  
 (6) credits must be taken in the Department of  
 Fashion and Apparel Studies.

#### ADDITIONAL FASHION MERCHANDISING CURRICULUM

#### CURRICULUM CREDITS

#### MAJOR REQUIREMENTS

ACCT 207 Accounting I

or		
FASH 217	Accounting Practice for Merchandise	3
MISY 160	Business Computing: Tools and Concepts	3
ACCT 352	Law and Social Issues in Business	3
BUAD 301	Introduction to Marketing	3
BUAD 309	Management and Organizational Behavior	3
BUAD 471	Advertising Management	3
BUAD 474	Marketing Channels and Retailing	3
FASH 355	International Fashion Consumers and Retailers	3
FASH 418	Merchandise Planning	3
FASH 420	Assortment Planning and Sourcing and Buying	3
FASH 430	Apparel Brand Management and Marketing	3

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credits required for the degree.

May include Military Science, Music, or Physical Education (Only two credits of activity-type Physical Education and four credits of Music ensemble and four credits of 100- and 200-level courses in Military Science/Air Force may be counted toward the degree).

CREDITS TO TOTAL A MINIMUM OF 120

#### HONORS - FASHION MERCHANDISING (BS)

The recipient must complete:

1. All requirements for the Bachelor of Science degree in Fashion Merchandising.
2. All the University's generic requirements for the Honors Baccalaureate Degree. Within these requirements, the twelve (12) honors credits earned in courses in the Department of Fashion and Apparel Studies or in closely related areas outside the Department must be approved by the student's advisor. Of these, a minimum of six (6) credits must be taken in the Department of Fashion and Apparel Studies.

#### 4+1 BACHELOR OF SCIENCE IN FASHION MERCHANDISING - MASTER OF SCIENCE IN FASHION STUDIES

The 4+1 program allows Fashion Merchandising majors who desire more education than the undergraduate major can provide to complete the master's degree in Fashion Studies in half the time. By accelerating attainment of a master's degree which includes writing a thesis, students are provided with expanded opportunities for attaining effective written communication skills, to think critically to solve problems, to work independently, and an opportunity to gain research experience with faculty scholars. A Master of Science in Fashion Studies may result in expanded opportunities for career growth in fashion, apparel, retail and related industries.

#### Requirements for Admission

The Bachelor of Science degree in Fashion Merchandising requires 120 credits. An additional 32 credits are required for the Master of Science in Fashion Studies, including 6 hours of thesis research. Undergraduate courses taken in the junior and senior years are combined to waive up to 13 credits of bachelor degree course requirements. In the freshmen and sophomore years and first semester of the junior year, students follow the FM curriculum as outlined in the undergraduate catalog.

Students are admitted into the 4+1 program in the spring of the junior year. During the second semester of the junior year and the senior year a minimum of 13 graduate credits at the 600 and 800 levels will be completed. Upon completion of the 4-year undergraduate degree, students will immediately begin taking the remaining graduate credits over a 1-year period.

#### Specific admission requirements are:

1. Students must be enrolled at the University of Delaware in the Department of Fashion and Apparel Studies pursuing an undergraduate major in Fashion Merchandising.
2. A minimum of 60 undergraduate credits and a GPA equivalent to at least 3.2 on a 4.0 scale in all prior undergraduate college-level course work.
3. Students must take the GRE; however, the GRE is waived if a student has a 3.5 GPA or higher.
4. Primary criteria: Candidates for admission must submit 3 letters of recommendation and a personal statement describing interests, intellectual goals, and how this program would meet their goals and objectives. A resume and a writing sample (research paper) are required.

5. Secondary criteria: In instances such as high applicant numbers, candidates for admission will be evaluated on additional criteria including determination by faculty of the students' clear promise, or demonstration of, research potential, as well as an Interview.

6. Students are admitted with provisional status until completion of the senior year and 120 credits, whereupon they are granted regular status as graduate students.

Admission to the 4+1 program is competitive. Those who meet stated requirements are not guaranteed admission, nor are those who fail to meet all of those requirements necessarily precluded from admission if they offer other appropriate strengths.

Application deadlines. Review of applicants begins October 15th of the junior year and students are officially notified by November 1st. Students begin the 4+1 program in the spring of the junior year.

#### Requirements for the Degree

#### CURRICULUM CREDITS

#### UNIVERSITY REQUIREMENTS

ENGL 110	Critical Reading and Writing (minimum grade C-)	3	
First Year Experience (FYE)	UNIV101	3	
Breadth Requirements		12	
Discovery Learning Experience (DLE)			
	FASH 419	3	
Multi-cultural Course		3	

#### MAJOR REQUIREMENTS

English Writing Course		3	
Selected from courses approved for Arts and Sciences second writing requirement.			
Arts and Sciences Group B Elective		3	
Two Modern Foreign Language Courses			4-8
COMM 212	Oral Communications in Business	3	
CHEM 101	General Chemistry	4	
CHEM 102	General Chemistry	4	
MATH 114			
or			
MATH 115	or higher level/equivalent	3	
ECON 151	Introduction to Microeconomics: Prices & Markets	3	
PSYC 100	General Psychology	3	
SOCI 201	Introduction to Sociology	3	
FASH 215	Fundamentals of Textiles I	3	
FASH 218	Fashion Merchandising	3	
FASH 220	Fundamentals of Textiles II	3	
	Costume History Course	3	

FASH 325	Multimedia Fashion Presentations	3	
FASH 665	Fashion Studies Seminar	1	
FASH 655	Textile & Apparel in the Global Economy	3	
FASH 210	Seminar on Fashion and Sustainability	3	
FASH 133	Fashion Art Studio	3	
FASH 380	Product Development	3	

#### ADDITIONAL FASHION MERCHANDISING CURRICULUM

ACCT 207	Accounting		
or			
FASH 217	Accounting Practice for Merchandise	3	
MISY 160	Business Computing: Tools and Concepts	3	
ACCT 352	Law and Social Issues in Business	3	
BUAD 301	Introduction to Marketing	3	
BUAD 309	Management & Organizational Behavior	3	
BUAD 471	Advertising Management	3	
BUAD 474	Marketing Channels and Retailing	3	
ECON 152	Introduction to Macroeconomics	3	
FASH 355	International Fashion Consumers and Retailers	3	
FASH 418	Merchandising Planning	3	
FASH 420	Assortment Planning, Sourcing and Buying	3	
FASH 630	Apparel Brand Management & Marketing	3	
HDFS 615	Research Methods		
or			
EDUC 607	Educational Research Procedures	3	
FASH 800	Research Analysis in Fashion Studies	3	

TOTAL UNDERGRADUATE CREDITS 120

In the Graduate year of study students will take 19 credits with no electives or substitutions for requirements.

#### GRADUATE REQUIREMENTS

FASH 822	Global Fashion Consumer	3	
FASH 689	Apparel Supply Chains & Social Responsibility	1	
FASH 691	Socially Responsible Apparel: Global Policy	1	
FASH 692	Sustaining Global Apparel Supply Chains		

or		
FASH 695	Bringing Social Responsibility to Apparel Corporate Culture	1
FASH 825	Interdisciplinary Approaches to Creative Problem Solving	3
FASH 665	Fashion Studies Seminar	1
EDUC 665	Elementary Statistics	3
FASH 869	Thesis	6

Total 4+1 credits      139

## MINOR IN FASHION HISTORY AND CULTURE

### Minor in Fashion History and Culture

The Minor in Fashion History and Culture provides a unique opportunity for students to develop an understanding of the origins and evolution of dress and fashion in relation to global societies and cultures. Clothing and appearance (i.e. dress) are forms of non-verbal communication. Varying social, national, ethnic and gender groups project their identities through their dress. When examined from both historical and contemporary perspectives, as well as through analysis of cultural differences, clothing and appearance contribute to our understanding of the world. As an interdisciplinary subject, the development and importance of dress and fashion from pre-historic times until present day incorporates historical, economic, aesthetic, technological, social and cultural factors that influenced clothing change.

The Minor in Fashion History and Culture requires a total of 18 credits of course work.

Required Course		3
FASH 114	Fashion Style and Culture	
FASH 213	Twentieth Century Design: Ethnic Influences	3
FASH 214	Costume History Before 1600	3
FASH 224	Clothing Design and Production 1600 - Edwardian Period	3
FASH 319	Dress and Culture	3

And one of the following:

FASH 419	Social Psychological Aspects of Clothing	3
FASH 426	Historic Clothing and Textiles Collection Management	3

Total Credits    18

Interested students should have taken FASH 114 and may declare the minor in their Sophomore or Junior year. Students from outside the the

Fashion and Apparel Studies Department may enroll in FASH 114 during the Spring semester when it is open to non-majors, then apply to the minor.

## Foreign Languages and Literatures

Telephone: (302) 831-2591

<http://www.fllt.udel.edu>

Faculty Listing: <http://www.udel.edu/fllt/main/Faculty.html>

Modern. The BA in Foreign Languages and Literatures leads to concentrations in Chinese Studies, French Studies, German Studies, Italian Studies, Japanese Studies, Russian Studies, Spanish Studies, and Three Languages. In addition, the department co-sponsors joint majors in History/Foreign Language and in Political Science/Foreign Language. Honors Degree major programs are also available in Foreign Languages, Foreign Language Education, History/Foreign Languages, and Foreign Language/Political Science. Minors are offered in Chinese, French, German, Italian, Japanese, Russian, and Spanish and in French Studies, German Studies, and Spanish Studies. Foreign Language Certificate and Honors Foreign Language Certificate programs are offered for students in majors other than foreign languages. The Department of Foreign Languages and Literatures also collaborates with the Department of Business Administration in the Alfred Lerner College of Business and Economics on the major in International Business Studies.

To prepare students to speak, understand, read and write the language they are studying, the Department of Foreign Languages and Literatures uses proficiency-oriented communicative approaches to language learning. Some of the elementary/intermediate courses are team taught, and there are special programs for students at this level who want to continue their language/culture study abroad. A high-tech Foreign Language Media Center is available for student use.

All majors and minors are encouraged to spend at least one semester, one winter session, or one summer of study in a country in which the foreign language is spoken natively.

Ancient. The BA in Foreign Languages and Literatures leads to a concentration in Ancient Greek and Roman Studies. A minor and an Honors Degree program are also offered. This

program provides a liberal education in the fullest sense of that term by giving one the means to identify a problem, solve it without losing sight of its larger implications, express the solution clearly, and persuade others of its validity. Students of classical antiquity learn habits of accuracy and clarity of expression and in the process grapple with the universal ethical, social, and political problems.

#### Foreign Language Teacher Education Programs

The Department of Foreign Languages and Literatures administers the BA program in Foreign Language Education leading to certification for teaching French, German, Italian, Latin (including a concentration in Classics), and Spanish in grades K-12 or in secondary schools only. Those students pursuing teaching certification are required to study in a country where their particular foreign language is spoken. Information on study abroad programs is available through the Department of Foreign Languages and Literatures.

#### Placement and Duplicate Credit

Students intending to enroll in a foreign language course will be placed according to the number of years of previous study of that language. As a general rule, students with two years or less of high school foreign language or the equivalent will be placed at the 105 level, students with three years will be placed at the 106-level, and students with four years or more will be placed at the 107-level. Exceptions to this rule can be made only upon the recommendation of the Foreign Language Placement Advisor.

The University computer system will block students from registering for a language course for which they are over-qualified. For example, the system will not permit a student who has had three years of Spanish in high school to enroll in Spanish 105.

Students who are placed in 106 but who do not feel comfortable at that level may enroll at the 105-level with auditor status only. Students who are placed in 107 but who do not feel comfortable at that level may enroll at the 106-level only with permission of the placement advisor.

Students may move one level higher with permission of the placement advisor; no jumping

from 105 to 107 is permitted. Students may not place themselves into the 200 level without having completed 107, the foreign language exemption exam, or the AP exam with a score of 3 or higher.

No credit will be granted for a 100-level course if the student has already successfully completed a 200-level course or a course higher in the 100-level sequence in the same language, e.g., credit for a 105 course will not be given if a 106 course has already been successfully completed.

**Skipping Courses:** Students are advised that once they begin their foreign language courses at the 100-level, they are not permitted to skip courses in the sequence (for example, students are not permitted to move directly from 105 to 107). The prerequisite for each 100-level course must be observed.

100-level courses cannot be taken on a pass/fail basis if the courses are being used to satisfy a requirement or are prerequisites of a course used to satisfy a requirement.

It is important to note that only 12 credits of the same elementary/intermediate language will be counted towards the degree.

#### Study Abroad

In addition to several University-sponsored semester programs abroad in such locations as London, Paris, Granada (Spain), and Edinburgh (Scotland), some programs abroad are specifically designed for students of foreign languages.

For the advanced foreign language student, the Department of Foreign Languages and Literatures sponsors fall semester programs in France (Paris), Spain (Granada), and Austria (Salzburg) and spring semester programs in Austria (Salzburg), Mexico (Puebla), and Spain (Granada). Beginning and intermediate-level students may participate in winter and/or summer session programs in Argentina, Brazil, Chile, China, Costa Rica, Ecuador, France, Germany, Greece, Italy, Japan, Martinique, Mexico, Panama, Russia, Spain, or Tunisia.

All French Education, German Education, Italian education, and Spanish Education students must participate in a FLL-sponsored study abroad program in a country where their language is spoken, preferably a semester-long program.

Students majoring in French studies, German studies, Italian studies, and Spanish studies are expected to spend a semester abroad, and minors are strongly encouraged to do so.

Please consult the main office of the Department of Foreign Languages and Literatures for further details on all programs.

#### Residency Requirement

At least 15 hours of courses acceptable for credit in the major language and literature, including at least 6 credits at the 400-level, must be taken on campus or as part of a semester abroad program sponsored by the Department of Foreign Languages and Literatures. In the case of the three-languages major, at least 12 of the hours must be taken in Language One on campus or as part of a semester abroad program sponsored by the Department of Foreign Languages and Literatures.

#### Miscellany

**Credit by Examination:** Students may receive up to 6 credits by examination for language courses at the 200-level and above, including but not exceeding one "conversation" class. Native speakers may not receive credits for courses in conversation.

**Language Proficiency:** For information concerning language proficiency see Requirements for the Degree of Bachelor of Arts, under College of Arts and Sciences.

**Waivers or Substitutions:** Waivers or substitutions for any requirements may be requested by seeking recommendation of the advisor and approval of the department chair.

#### Honors Bachelor Of Arts

HONORS-FOREIGN LANGUAGES AND LITERATURES, FOREIGN LANGUAGE EDUCATION; HISTORY/FOREIGN LANGUAGE; FOREIGN LANGUAGE/POLITICAL SCIENCE (BA)

The following BA Degrees may be taken as Honors Degrees:

- Foreign Languages and Literatures Concentrations: Ancient Greek and Roman Studies, French Studies, German Studies, Italian Studies, Russian Studies, Spanish Studies, Three Languages

- French Education
- German Education
- Italian Education
- Latin Education (including Classics concentration)
- Spanish Education
- History/Classics, French, German, Russian, or Spanish
- French, German, or Spanish/Political Science

#### HONORS DEGREE REQUIREMENTS

To receive the BA Honors degree, students must complete the following:

A. All requirements for one of the degrees listed above.

B. All the University's generic requirements for the Honors Degree .

1. At least six of the Honors credits in the BA in Foreign Languages and Literatures or the BA in Foreign Language Education must be at the 300-level or above.
2. For the Honors Degree with Distinction, the Honors thesis will normally be written in the target language. With the prior approval of the thesis director and the Department Chair, the thesis may be written in English.
3. For the joint degree with History, at least six of the Honors credits in the major must be at the 300-level or above.
4. For the joint degree with Political Science, the Honors credits in the majors shall come from both participating departments, and shall include at least two courses at the 300-level or above. The cumulative grade point average for all courses in the major must be at least 3.400.

#### FOREIGN LANGUAGES AND LITERATURES (ANCIENT GREEK AND ROMAN STUDIES) (BA)

This concentration requires the choice of one of the following options: Civilization and Culture, Ancient Greek and Latin Language and Literature, Latin Language and Literature. Students must see their advisor or the Associate Chair of the department to choose one of these options. Specific requirements for these options can be viewed on-line at [www.flit.udel.edu/lang/classics/programs.htm](http://www.flit.udel.edu/lang/classics/programs.htm); paper copies are available at the department office, 103 Jastak-Burgess Hall.

#### CURRICULUM CREDITS

University and College Requirements.  
MAJOR REQUIREMENTS

Nine credits on Ancient Greek and Roman authors or topics chosen from among the following FLLT courses: 9  
FLLT 202 (Biblical and Classical Literature), FLLT 316 (Gods, Heroes, and Monsters: Classical Mythology), FLLT 322 Topic: (In Love and War: Greek Tragedy), FLLT 322 (Topic: Antiquity through Modern Eyes), FLLT 320/FLLT 322/FLLT 330 (variable topics, genres, periods, and authors)  
Six credits in Ancient Greek or Latin at the 200 level or above 6

A three-credit capstone experience (GREK or LATN 4xx capstone if available, FLLT 490 or FLLT 495).  
Senior thesis or equivalent fulfills the capstone requirement (3).

Twenty-one credits chosen from the following programs and departments in accordance with the requirements of the option selected and with prior approval of the advisor: GREK, LATN, FLLT, ANTH, ARTH, HIST, PHIL, POSC, THEA 21

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

NOTE: See your advisor or the Associate Chair of the department for the specific program of study requirements. The majority of the specific course requirements are generally at the 300-400 level depending on the student's program of study option.

**BACHELOR OF ARTS - FOREIGN LANGUAGES AND LITERATURES (CHINESE STUDIES)**  
DEGREE: BACHELOR OF ARTS  
MAJOR: FOREIGN LANGUAGES AND LITERATURES  
CONCENTRATION: CHINESE STUDIES

Specific requirements for this concentration are described below.

#### CURRICULUM CREDITS

University and College Requirements  
MAJOR REQUIREMENTS  
Twelve courses (36 credits), as follows.

Eight courses in Chinese (24 credits):  
Three of: CHIN 2xx 9  
Two of: CHIN 3xx 6  
Two of: CHIN 4xx 6

One CHIN 3xx (culture/literature) or 4xx (literature) 3

Two non-language courses in CHIN or FLLT (6 credits), selected from the following:

CHIN204 (calligraphy), CHIN 208 (culture & society, taught in China), FLLT 321 (Chinese literature), FLLT 330 (modern Chinese women writers), FLLT 331 (Chinese film) 6

A three-credit capstone experience (CHIN 4xx capstone if available, FLLT 490, FLLT 495, or Thesis) 3

One additional course in China-related work (3 credits) may be selected from the above list or chosen from offerings in HIST, ARTH, POSC, PHIL with prior approval of the advisor.

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

#### **FOREIGN LANGUAGES AND LITERATURES (FRENCH STUDIES) (BA)**

Specific requirements for this concentration are described below. These requirements can also be viewed on-line at: [www.fllt.udel.edu/lang/french/frenchstudies.html](http://www.fllt.udel.edu/lang/french/frenchstudies.html).

Paper copies are available at the department office, 103 Jastak-Burgess Hall.

#### CURRICULUM CREDITS

University and College requirements.

#### MAJOR REQUIREMENTS

Thirteen courses (39 credits), as follows:

Ten courses in French (30 credits):

FREN 211 3  
Two of: FREN 301, FREN 302, FREN 355 6  
Three of: FREN 3xx, FREN 4xx 9  
One FREN 4xx (literature) 3  
Three additional FREN 4xx 9

A three-credit capstone experience: FREN 4xx capstone if available, FLLT 490 or FLLT 495 (Senior thesis or equivalent fulfills the capstone requirement) 3

A total of two courses may be taken from a wide selection 6

FREN 2xx, FREN 207, FREN 208, FREN 3xx, FLLT 202 or any FLLT course numbered 320-330; HIST 339, ARTH 339, POSC 441 (courses offered abroad). Extra-departmental courses: HIST 346 (Age of Louis XIV); HIST 347 (The French Revolution and Napoleon); HIST 361, HIST 475, ARTH 225 (Eighteenth Century Art); ARTH 227 (Modern Art I); ARTH 228 (Modern Art II), ARTH 307.

NOTE: Students wishing to pursue a linguistics option in French Studies should consult their advisor or the Associate Chair of the department.

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

### FRENCH EDUCATION (BA)

#### CURRICULUM CREDITS

University and College requirements.

#### MAJOR REQUIREMENTS

FREN 211	French Reading & Composition	3
FREN 301	French Literature: Prose	3
FREN 302	French Literature: Poetry & Theatre	3

One of the following courses: 3

FREN 314	French Phonetics
FREN 403	Structure of French

One of the following courses: 3

FREN 306	Practical Oral/Written Expression
FREN 305	Advanced French Conversation

Two of the following courses: 6

FREN 308	Contemporary France
FREN 325	French Civilization I
FREN 326	French Civilization II
FREN 453	French Civilization III

One of the following courses: 3

FREN 404	Advanced Composition and Grammar
FREN 405	Translation and Stylistics
FREN 406	Advanced French Language

Six credits in French Literature at the 400-level. 6

EDUC 413	Adolescent Development and Educational Psychology	4
EDUC 414	Teaching Exceptional	

	Adolescents	3
EDUC 419	Diversity in Secondary Education	3
EDUC 400	Student Teaching	9
FLLT 421/LING 421	Methods of Teaching Foreign Languages	3
FLLT 422/LING 422	Language Syllabus Design	3
LING 424/FLLT 424	Second Language Testing	3

Grade of C- or better required in all required FREN, EDUC, FLLT, and LING courses.

For Foreign Language in Elementary School (K-12 certification) option, required courses in addition to above:

FLLT 429/EDUC 429	Methods of Teaching Foreign/Second Languages in Elementary Schools	3
EDUC 476/LING 476	Second Language Acquisition and Bilingualism	3
EDUC 205	Human Development: Grades K-8	3

To qualify for admission to student teaching, French Education majors must obtain a rating of AL (Advanced Low) on the Oral Proficiency Interview in French. They must also have a GPA of 2.75 overall, a GPA of 3.0 in their required French courses, and a GPA of 3.0 in their required pedagogy courses (FLLT 421, FLLT 422, and FLLT 424), in order to be eligible to student teach. See EDUC 400 for pre- and co-requisite examination requirements. Students must consult with the teacher education program coordinator to obtain the student teaching application and other information concerning student teaching policies.

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

### FOREIGN LANGUAGES AND LITERATURES (GERMAN STUDIES) (BA)

Specific requirements for this concentration are described below. These requirements can also be viewed on-line at: [www.udel.edu/flt/faculty/lisat/grmnb.html](http://www.udel.edu/flt/faculty/lisat/grmnb.html).

Paper copies are available at the department office, 103 Jastak-Burgess Hall.

## CURRICULUM CREDITS

University and College requirements.

## MAJOR REQUIREMENTS

Thirteen courses (39 credits), as follows:

Ten courses in German:

Two of GRMN 2xx 6  
Two of GRMN 311, GRMN 355, GRMN 3xx 6  
Two of GRMN 3xx, 4xx 6  
Four of GRMN 4xx 12

Prerequisites for GRMN 300-level work are any two 200-level courses.

Prerequisites for GRMN 400-level work are any three 300-level courses.

A three-credit capstone: Grmn 4xx capstone if available, FLLT 490, or FLLT 495 ( Senior thesis or equivalent fulfills the capstone requirement) 3

Two courses (6 credits) may be taken from a wide selection: 6

GRMN 2xx, GRMN 3xx, GRMN 4xx, GRMN 208, any FLLT course numbered 320-330; HIST 353, HIST 354, ARTH 339, POSC 441, MUSC 339.

## ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

## GERMAN EDUCATION (BA)

### CURRICULUM CREDITS

University and College requirements.

### MAJOR REQUIREMENTS

Ten courses conducted in German:

Two of GRMN 2xx 6  
Two of GRMN 3xx 6  
Two of GRMN 3xx, 4xx 6  
Four of GRMN 4xx 12  
EDUC 413 Adolescent Development and Educational Psychology 4  
EDUC 414 Teaching Exceptional Adolescents 3  
EDUC 419 Diversity in Secondary Education 3  
FLLT 421/LING 421 Methods of Teaching Foreign Languages 3  
FLLT 421/LING 422 Language Syllabus Design 3  
LING 421/FLLT 424 Second Language Testing 3  
EDUC 400 Student Teaching 9

Grade of C- or better required in all required GRMN, EDUC, FLLT, and LING courses.

To qualify for admission to student teaching, German Education majors must obtain a rating of AL (Advanced Low) on the Oral Proficiency Interview in German. They must also have a GPA of 2.75 overall, a GPA of 3.0 in their required German courses, and a GPA of 3.0 in their required pedagogy courses (FLLT 421, FLLT 422, FLLT 424), in order to be eligible to student teach. See EDUC 400 for pre- and co-requisite examination requirements. Students must consult with the teacher education program coordinator to obtain the student teaching application and other information concerning student teaching policies.

## ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

## FOREIGN LANGUAGES AND LITERATURES (JAPANESE STUDIES) (BA)

### CURRICULUM CREDITS

University and College requirements.

### MAJOR REQUIREMENTS

Twelve courses (36 credits), as follows.

Eight courses in Japanese (24 credits):

Three of: JAPN 2xx 6  
Two of: JAPN 3xx 6  
Two of: JAPN 4xx 6

One JAPN 3xx (literature) or 4xx (literature) 3

Two non-language courses in JAPN or FLLT (6 credits), selected from the following:

JAPN 204 (calligraphy), JAPN 208 (culture, taught in Kobe), JAPN 308 (culture, taught in Kobe), FLLT 328 (Japanese literature), FLLT 338 (Japanese film), FLLT 380 (Japanese visual culture) 6

One additional course in Japan-related work (3 credits), which may either be selected from the above list of non-language courses in JAPN or FLLT, or chosen from offerings in ANTH, ARTH, HIST, POSC with prior approval of the advisor 3

A three-credit capstone experience (JAPN 4xx capstone if available, FLLT 490, FLLT 495, or

Thesis) 3

## FOREIGN LANGUAGES AND LITERATURES (ITALIAN STUDIES) BA

These requirements can also be viewed on-line at: [www.udel.edu/flt/lang/italian/italba.html](http://www.udel.edu/flt/lang/italian/italba.html). Paper copies are available at the department office, 103 Jastak-Burgess Hall.

### CURRICULUM CREDITS

University and College requirements.

### MAJOR REQUIREMENTS

Thirteen courses (39 credits), as follows:

Ten courses in Italian:

One ITAL 2xx 3  
ITAL 211 or ITAL 212 3  
ITAL 305 or ITAL 306 3  
Two of: ITAL 310, ITAL 311, ITAL 355 6  
Two of ITAL 4xx (literature) 6  
One ITAL 4xx 3  
Two of ITAL 3xx, 4xx 6

A three-credit capstone experience: Ital 4xx capstone if available, FLLT 490, or FLLT 495 (Senior thesis or equivalent fulfills the capstone requirement) 3

Two courses (6 credits) at the 200-level or above, chosen with the prior approval of the advisor, from the following areas: Italian, Art History, Comparative Literature, English, Foreign Languages and Literatures, History, Music, Philosophy, Political Science, or Theatre 6

NOTE: Students wishing to pursue a linguistics option in Italian Studies should consult their advisor or the Associate Chair of the department.

### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

## ITALIAN EDUCATION (BA)

### CURRICULUM CREDITS

University and College requirements.

### MAJOR REQUIREMENTS

ITAL 200 Italian Grammar Review 3  
or

ITAL 250 Introduction to Business Italian  
ITAL 205 Italian Conversation 3  
or  
ITAL 206 Culture through Conversation  
ITAL 211 Italian Reading and Composition:  
Short Fiction 3  
or  
ITAL 212 Italian Reading and Composition:  
Drama and Prose  
ITAL 305 Advanced Italian Conversation  
and Composition 3  
or  
ITAL 306 Practical Oral/Written Expression  
ITAL 3xx Literature 6  
ITAL 3xx Civilization 3  
ITAL 4xx Literature 6  
ITAL 4xx Language 3  
EDUC 413 Adolescent Development and  
Educational Psychology 4  
EDUC 414 Teaching Exceptional  
Adolescents 3  
EDUC 419 Diversity in Secondary  
Education 3  
EDUC 400 Student Teaching 9  
FLLT 421/LING 421 Methods of Teaching  
Foreign Languages 3  
FLLT 421/LING 422 Language Syllabus  
Design 3  
LING 421/FLLT 424 Second Language  
Testing 3

Grade of C- or better required in all required ITAL, EDUC, FLLT, and LING courses.

To qualify for admission to student teaching, Italian Education majors must obtain a rating of AL (Advanced Low) on the Oral Proficiency Interview in Italian. They must also have a GPA of 2.75 overall, a GPA of 3.0 in their required Italian courses, and a GPA of 3.0 in their required pedagogy courses (FLLT 421, FLLT 422, and FLLT 424), in order to be eligible to student teach. See EDUC 400 for pre- and co-requisite examination requirements. Students must consult with the teacher education program coordinator to obtain the student teaching application and other information concerning student teaching policies.

### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

## LATIN EDUCATION (BA)

### CURRICULUM CREDITS

University and College requirements.

### MAJOR REQUIREMENTS

LATN 2xx	6	
LATN 3xx and/or LATN 4xx	9	
LATN 421	Latin Prose Composition	3
LATN 431	History of Latin Literature	3
LATN 4xx	9	
EDUC 413	Adolescent Development and Educational Psychology	4
EDUC 414	Teaching Exceptional Adolescents	3
EDUC 419	Diversity in Secondary Education	3
EDUC 400	Student Teaching	9
FLLT 421/LING 421	Methods of Teaching Foreign Languages	3
FLLT 422/LING 422	Language Syllabus Design	3
LING 424/FLLT 424	Second Language Testing	3

Grade of C- or better required in all required LATN, EDUC, FLLT, and LING courses.

To qualify for admission to student teaching, Latin Education majors must have a GPA of 2.75 overall, a GPA of 3.0 in their required Latin courses, and a GPA of 3.0 in their required pedagogy courses(FLLT 421, FLLT 422 and FLLT 424). See EDUC 400 for pre- and co-requisite examination requirements. Students must consult with the teacher education program coordinator to obtain the student teaching application and other information concerning student teaching policies.

### ELECTIVES

After required courses are completed sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

## LATIN EDUCATION (CLASSICS) (BA)

### CURRICULUM CREDITS

University and College requirements.

### MAJOR REQUIREMENTS

GREK 101/GREK 102	Elementary Ancient Greek	6
One additional GREK course at the 200-, 300-, or		

LATN 202	400-level Vergil (prerequisite: LATN 201 or permission of instructor)	3	
Two additional LATN courses at the 200- or 300-level (excluding LATN 201)			6
Three additional LATN courses at the 300- or 400-level			9

One of the following			3
FLLT 202	Biblical and Classical Literature		
FLLT 316	Classical Mythology		
FLLT 322	Topics: Classical Literature in Translation		

EDUC 413	Adolescent Development and Educational Psychology	4
EDUC 414	Teaching Exceptional Adolescents	3
EDUC 419	Diversity in Secondary Education	3
EDUC 400	Student Teaching	9
FLLT 421/LING 421	Methods of Teaching Foreign Languages	3
FLLT 422/LING 422	Language Syllabus Design	3
LING 424/FLLT 424	Second Language Testing	3

Grade of C- or better required in all required LATN, EDUC, FLLT, and LING courses.

To qualify for admission to student teaching, Latin Education majors with a Concentration in Classics must have a GPA of 2.75 overall, a GPA of 3.0 in their required Latin and Greek courses and related work, and a GPA of 3.0 in their required pedagogy courses(FLLT 421, FLLT 422, and FLLT 424). See EDUC 400 for pre- and co-requisite examination requirements. Students must consult with the teacher education program coordinator to obtain the student teaching application and other information concerning student teaching policies.

### ELECTIVES

After required courses are completed sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

## FOREIGN LANGUAGES AND LITERATURES (RUSSIAN STUDIES) (BA)

This concentration requires the choice of one of the following options: Language and Literature, Period Studies, Area Studies, Linguistics. Students must see their advisor to choose one

of these options. Specific requirements for these options can be viewed on-line at: [www.udel.edu/lang/russianBA.html](http://www.udel.edu/lang/russianBA.html); paper copies are available at the department office, 103 Jastak-Burgess Hall.

#### CURRICULUM CREDITS

University and College requirements.

#### MAJOR REQUIREMENTS

Twelve credits in RUSS electives at the 200-level and above. 12

Twelve credits in RUSS literature at the 300 or 400-level (at least six credits must be at the 400-level) 12

FLLT 327 Topics: Russian Literature in Translation 3

FLLT 375 Topics: Russian and Soviet Culture in Translation 3

A three-credit capstone experience: RUSS 4xx capstone if available, FLLT 490, or FLLT 495 (Senior thesis or equivalent fulfills the capstone requirement) 3

A total of six credits at the 200-level or above, chosen with prior approval of the advisor and according to option requirements, from the following areas: 6

Russian, Art History, Comparative Literature, English, Foreign Languages and Literatures, History, Linguistics, Music, Political Science.

#### Electives

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

#### FOREIGN LANGUAGES AND LITERATURES (SPANISH STUDIES) (BA)

Specific requirements for this concentration are described below. These requirements can also be viewed on-line at: [www.fllt.udel.edu/lang/spanish/spanishstudies.html](http://www.fllt.udel.edu/lang/spanish/spanishstudies.html).

Paper copies are available at the department office, 103 Jastak-Burgess Hall.

#### CURRICULUM CREDITS

University and College requirements.

Option I. Spanish Studies: Language and Literature

Twelve courses (36 credits), as follows:

Ten SPAN courses (30 credits):

SPAN 200	3	
SPAN 201	3	
SPAN 300	3	
Two of SPAN 301, 302, 303, 304, 355, 370		6
One of SPAN 307, 308, 325, 326	3	
One of SPAN 2xx or 3xx	3	
Two SPAN 4xx (literature)	3	
One SPAN 400-level courses (language, literature, film, culture)	3	

Capstone Experience: Capstone Seminar (SPAN490) or Thesis (SPAN466 –prior approval of faculty advisor required; UNIV401/402, or Honors Thesis) 3

One course in Spanish (3 credits) to be chosen from the following 3  
SPAN 4xx or a course in other disciplines taught in the Spanish language (usually as study abroad courses): History, Political Science, Anthropology, Art History

NOTE: Students wishing to pursue a linguistics option in Spanish Studies should consult their advisor or the Associate Chair of the department.

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

Option II. Spanish Studies: Language, Literature, and Intensive Portuguese

14 courses (42 credits), as follows:

Same major requirements as above

36 credits

PORT 216 and 316 6

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

Option III. Spanish Studies: Language & Culture

#### MAJOR REQUIREMENTS

12 courses (36 credits), as follows:

Nine SPAN courses (27 credits):

SPAN 200	3	
SPAN 201	3	
SPAN 300	3	
One of SPAN 301, 302, 303, 304, 355, 370		3
One of SPAN 307, 308, 325, 326	3	

One of SPAN 2xx or 3xx 3  
 One of SPAN 3xx or 4xx 3  
 Two SPAN 4xx 6

Capstone Experience: SPAN/LAMS 475 3

Two courses in Spanish (6 credits) to be chosen from the following: 6  
 SPAN 4xx and/or courses in other disciplines taught in the Spanish language (usually as study abroad courses): History, Political Science, Anthropology, Art History

**ELECTIVES**

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

**CREDITS TO TOTAL A MINIMUM OF 12**

Option IV. Spanish Studies: Language, Culture, and Intensive Portuguese  
**MAJOR REQUIREMENTS**  
 14 courses (42 credits), as follows:  
 Same major requirements as above 36 credits

PORT 216 and 316 6

**ELECTIVES**

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

**CREDITS TO TOTAL A MINIMUM OF 124**

**SPANISH EDUCATION (BA)**

**CURRICULUM CREDITS**

University and College requirements.

**MAJOR REQUIREMENTS**

SPAN 201 Spanish Reading and Composition (SPAN 200 is a prerequisite) 3  
 SPAN 305 Oral Communication 3  
 or  
 SPAN 306 Practical Oral/Written Expression  
 SPAN 314 Spanish Phonetics and Phonology 3

One of the following courses: 3  
 SPAN 308 Contemporary Spain II  
 SPAN 325 Spanish Civilization and Culture  
 SPAN 326 Latin American Civilization and Culture

Any three of the following six literature survey courses: 9

SPAN 301 Survey of Spanish Literature  
 SPAN 302 Survey of Spanish Literature  
 SPAN 303 Survey of Spanish-American Literature  
 SPAN 304 Survey of Spanish-American Literature  
 SPAN 355 Special Topics  
 SPAN 370 Studies in Spanish Literature (taught in Spain)

One of the following courses: 3

SPAN 300 Advanced Spanish Composition and Grammar I  
 SPAN 401 Advanced Spanish Grammar II  
 SPAN 403 History of the Spanish Language  
 SPAN 406 Advanced Spanish Language

Six credits in SPAN literature at the 400-level 6

EDUC 413 Adolescent Development and Educational Psychology 4  
 EDUC 414 Teaching Exceptional Adolescents 3  
 EDUC 419 Diversity in Secondary Education 3  
 EDUC 400 Student Teaching 9  
 FLLT 421/LING 421 Methods of Teaching Foreign Languages 3  
 FLLT 422/LING 422 Language Syllabus Design 3  
 LING 424/FLLT 424 Second Language Testing 3

Grade of C- or better required in all required SPAN, EDUC, FLLT, and LING courses.

For Foreign Language in Elementary School (K-12 certification) option, required courses in addition to above:

FLLT 429/EDUC 429 Methods of Teaching Foreign/Second Languages in Elementary Schools 3  
 EDUC 476/LING 476 Second Language Acquisition and Bilingualism 3  
 EDUC 205 Human Development: Grades K-8 3

To qualify for admission to student teaching, Spanish Education majors must obtain a rating of AL (Advanced Low) on the Oral Proficiency Interview in Spanish. They must also have a GPA of 2.75 overall, a GPA of 3.0 in their required Spanish courses, and a GPA of 3.0 in their required pedagogy courses (FLLT 421, FLLT 422, and FLLT 424), in order to be eligible to student teach. See EDUC 400 for pre- and co-requisite

examination requirements. Students must consult with the teacher education program coordinator to obtain the student teaching application and other information concerning student teaching policies.

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

#### FOREIGN LANGUAGES AND LITERATURES (THREE LANGUAGES) (BA)

##### CURRICULUM CREDITS

University and College requirements.

##### MAJOR REQUIREMENTS

###### First Language

Six credits at the 200-level and above. 6  
Eighteen credits at the 300 and 400-level (at least six credits at the 400 level) 18

###### Second Language

Six credits at the 200-level and above. 6  
Twelve credits at the 300 and 400-level (at least three credits at the 400 level) 12

###### Third Language

Six credits at or above the 200-level 6  
A three-credit capstone experience: FLLT 490 or FLLT 495 (Senior thesis or equivalent fulfills the capstone requirements) 3

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

#### Notes:

(1) Selection of First Language is limited to those languages in which the Department of Foreign Languages and Literatures offers a major. The second language may be selected from languages in which the Department of Foreign Languages and Literatures offers a major or a minor.

(2) Students enrolled in the Three Languages Major are strongly encouraged to participate in at least one of the study abroad programs sponsored by the Department of Foreign Languages and Literatures.

#### HISTORY/CLASSICS, FRENCH, GERMAN, RUSSIAN, OR SPANISH (BA)

##### CURRICULUM CREDITS

University and College requirements.

##### MAJOR REQUIREMENTS

HIST 101	Western Civilization to 1648	3
HIST 102	Western Civilization: 1648 to the Present	3
HIST 268	Seminar	3

Five 300-level courses, at least two of which must deal with countries that use the chosen foreign language 15

History seminar at the 400-level or above (excluding HIST 491 and HIST 493 and Independent Study) 3

One of the following language options:

###### Classics

Civilization: Two classical civilization (or culture) courses: e.g., FLLT 202 (Biblical and Classical Literature), FLLT 316 (Mythology), FLLT 320/FLLT 322/FLLT 330 (Variable Topics, Genres, Periods, Authors) 6

Literature: Either 9 credits of Latin at the 200-level or above and 3 credits of Latin at the 300-level or above, or GREK 201 and GREK 202 and 6 credits of Latin at the 200-level or above 12

###### French

Civilization: FREN 325 (French Civilization I), or  
FREN 326 (French Civilization II) or  
FREN 453 (French Civilization III) 3  
Literature: FREN 301 (Introduction to French Literature: Prose) and FREN 302 (Introduction to French Literature: Poetry and Theatre) 6  
400-level literature course 3  
Two courses at the 200, 300, or 400-level 6

###### German

Civilization: GRMN 325 (German Civilization and Culture) 3  
Literature: GRMN 311 (Introduction to German Literature I) and GRMN 3XX 6  
400-level literature course 3  
Two courses at the 200, 300, or 400-level 6

###### Russian

Civilization: RUSS 325 (Russian Civilization) 3  
Literature: RUSS 310 (Introduction to Russian Literature I) and RUSS 312 (Introduction to

Russian Literature II) 6  
400-level literature course 3  
Two courses at the 200, 300, or 400-level 6

#### Spanish

Students must choose either the Peninsular (SPAN 325, SPAN 301, SPAN 302) or the Latin American (SPAN 326, SPAN 303, SPAN 304) track. Civilization: SPAN 325 (Spanish Civilization and Culture)

or

SPAN 326 (Latin American Civilization and Culture) 3

Literature: SPAN 301 (Survey of Spanish Literature) and SPAN 302 (Survey of Spanish Literature) 6

or

SPAN 303 (Survey of Spanish-American Literature) and SPAN 304 (Survey of Spanish-American Literature) 6

400-level literature course 3

Two courses at the 200, 300, or 400-level 6

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

Honors Degree: An Honors Degree option is also available.

CREDITS TO TOTAL A MINIMUM OF 124

#### **FRENCH, GERMAN, OR SPANISH/POLITICAL SCIENCE (BA)**

##### CURRICULUM CREDITS

University and College requirements.

##### MAJOR REQUIREMENTS

French, German, or Spanish/Political Science majors must complete all designated courses and any prerequisite courses (e.g., for admission to the 200-level language courses) with no grade below a C.

POSC 150 The American Political System 3  
(or other required intro courses)

POSC 240 Introduction to International Relations 3

POSC 270 Comparative Politics 3

POSC 310 European Governments 3

POSC 441 Problems of Western European Politics by Country 3

or

POSC 442 Problems of Western European Politics

3 additional courses at the 300 or 400-level with at least 2 at the 400-level and at least 2 in the area of International Relations 9

One of the following language options:

French

FREN 2xx, 3xx, 4xx (prior to semester abroad) 6

FREN 3xx, 4xx 12

FREN 4xx (literature) (Newark campus only) 3

German

GRMN 2xx, 3xx, 4xx (prior to semester abroad) 6

GRMN 3xx, 4xx 12

GRMN 4xx (literature) (Newark campus only) 3

Spanish

SPAN 2xx, 3xx, 4xx (prior to semester abroad) 6

SPAN 3xx, 4xx 12

SPAN 4xx (literature) (Newark campus only) 3

In completing one of the language options above, students are required to participate in a semester abroad program sponsored by the Department of Foreign Languages and Literatures (in Paris, or the equivalent, for French; in Salzburg, or the equivalent, for German; in Granada, or the equivalent, for Spanish).

The following courses taken abroad count toward the French, German, or Spanish/Political Science major:

Political Science

POSC 441

French

FREN 306 or FREN 406

FREN 308

FREN 355 or FREN 455

HIST 339

German

GRMN 306 or GRMN 406

GRMN 308

GRMN 355 or GRMN 455

HIST 339

Spanish

SPAN 306 or SPAN 406

SPAN 308

SPAN 355 or SPAN 455

HIST 339

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

Honors Degree: An Honors Degree option is available for the BA in French, German, or

Spanish/Political Science.

CREDITS TO TOTAL A MINIMUM OF 124

## MINORS

**FOREIGN LANGUAGE MINORS:** An advisor on minors for each language will help students tailor the chosen minor program to their needs. A minor in a foreign language requires a minimum of 18-21 credits at the 200 level or above, as follows:

**ANCIENT GREEK AND ROMAN STUDIES:** 18 credits as follows: 6 credits in Latin and/or Greek at the 200-level or above, 6 credits in FLLT courses focusing on the literature and/or culture of ancient Greece and Rome, at least one of which must be at the 300-level (e.g. FLLT 316 Gods, Heroes, and Monsters; FLLT 330 Roman Rulers and Rebels; FLLT 322 Greek Tragedy; FLLT 202 Biblical and Classical Literature, FLLT 320/FLLT 330 Society and Spectacle in Ancient Greece and Rome; FLLT 322 Antiquity through Modern Eyes; FLLT 322 Greek Comedy), and 6 credits from related disciplines (at the 200-level or above, at least one of which must be at or above the 300-level) reflecting the students' particular interests in the classical world and selected with prior approval of the advisor (ANTH, ARTH, FLLT, GREK, HIST, LATN, PHIL, POSC, THEA).

**CHINESE:** 18 credits including 15 credits in CHIN courses at the 200 level or above, with at least 6 of those credits at the 300 level or above, plus 3 credits in a China-related FLLT course.

**FRENCH:** 18 credits above the 100-level including FREN 211, FREN 301 and FREN 302, one course at the 300 or 400-level, and one other 400-level course.

**GERMAN:** 18 credits above the 100-level including at least two courses at the 300-level and two courses at the 400-level. GRMN 208 is not for minor credit.

**ITALIAN:** 18 credits composed of ITAL 211 or ITAL 212; two additional courses at the 200, 300 or 400-level; one 300-level literature course; one 300 or 400-level course; and one 400-level course.

**JAPANESE:** 18 credits in JAPN courses taught in Japanese at the 200 level and above, including 6 credits at the 300 level and 3 credits at the 400 level. 3 of the 18 credits may be from a Japan-related FLLT course, JAPN 204, or JAPN 208.

**RUSSIAN:** 18 credits composed of two Russian courses at the 200-level; three courses at the 300 or 400-level, one of which must be a 400-level

course; and 3 credits of related work (e.g., Russian history, political science, art, music, etc.).  
**SPANISH:** 21 credits including SPAN 200, SPAN 201 and an additional 200-level course taught in Spanish; two 300-level courses (one must be a Survey of Literature) and two 400-level courses (one must be a literature course).

**FOREIGN LANGUAGE STUDIES MINOR:** The Foreign Language Studies (FLS) minor (in French, German or Spanish) requires participation in a UD Department of Foreign Languages and Literatures sponsored semester abroad program. See the Foreign Languages and Literatures Study Abroad Coordinator for details and prerequisites. Credit requirements for the FLS minors are as follows:

FRENCH STUDIES MINOR	21
FREN 2xx, 3xx, 4xx (Newark campus only)	6
FREN 306 or FREN 406	3
FREN 308	3
Three of: ARTH 339, BUAD 384, FREN 355, FREN 455, HIST 339, POSC 441	9

Minors in French Studies are required to take at least one literature course at the 300-level or above.

Note: A student cannot receive both a French Minor and a French Studies Minor.

GERMAN STUDIES MINOR	21
GRMN 2xx, 3xx, 4xx (Newark campus only)	6
GRMN 206, GRMN 306 or GRMN 406	3
Four courses at the 200-, 300-, and 400-levels offered during the semester program in Salzburg	12

No more than 6 of the total 21 credits may be at the 200-level.

Minors in German Studies are required to take at least one literature course at the 300-level or above.

Note: A student cannot receive both a German Minor and a German Studies Minor.

SPANISH STUDIES MINOR	21
SPAN 2xx, 3xx, 4xx	6
SPAN 306 or SPAN 406	3
SPAN 307 or SPAN 308	3
Three of*: ARTH 339, SPAN 370, SPAN 455, HIST 336, HIST 339, POSC 441, BUAD 384, ANTH 375, POSC 450	9

\*Courses must be taught in Spanish

Minors in Spanish Studies are required to take at least one literature course at the 300-level or above.

Note: A student cannot receive both a Spanish Minor and a Spanish Studies Minor.

### **FOREIGN LANGUAGE AND HONORS FOREIGN LANGUAGE CERTIFICATES**

The Foreign Language Certificate Program and the Honors Foreign Language Certificate Program are intended to enhance the international dimension of the baccalaureate program for students in majors other than foreign languages by providing them with some first-hand knowledge of a foreign language and a foreign culture.

Students pursuing a major in the Department of Foreign Languages and Literatures or a minor in the language of the certificate are not eligible for these certificates.

To earn a BA degree with a Foreign Language Certificate in Brazilian Portuguese, Chinese, French, German, Italian, Japanese, or Spanish, a student is required to complete a designated sequence of four courses at the 200- and 300-levels. This is accomplished through a combination of two courses taken during Study Abroad Sessions in Brazil, China, France, Martinique, Germany, Italy, Japan, Spain, or Latin America, and two courses taken on the Delaware campus. A qualified student must complete the designated sequence of four 200- or 300-level Chinese, French, German, Italian, Japanese, or Spanish courses with no grade below a C.

To earn a BA degree with an Honors Foreign Language Certificate in French, German, Italian, Japanese, or Spanish, a qualified student must:

1. Complete the designated sequence of four 200- or 300-level French, German, Italian, Japanese, or Spanish courses with no grade below a B-.
2. Take all four of these courses for Honors credit.
3. Achieve a 3.000 cumulative grade index by the time of completion of the course requirements.

The Honors Foreign Language Certificate

can be earned in addition to other kinds of Honors Certificates. Honors courses taken in the sequence leading to the Honors Foreign Language Certificate can also be applied toward those required for other forms of Honors recognition.

### **BRAZILIAN PORTUGUESE CERTIFICATE COURSES**

#### **CURRICULUM CREDITS**

Study Abroad Session in Brazil:

PORT 207 Brazil Past and Present 3

Brazil or Delaware Campus:

PORT 216 Intensive Portuguese for Spanish Speakers I 3

PORT 316 Intensive Portuguese for Spanish Speakers II 3

Elective to be chosen from FLLT 337 (or another course focusing on Brazil offered on Delaware campus) or an elective offered in Brazil (including ANTH 311 or FLLT 320) 3

### **CHINESE CERTIFICATE COURSES**

#### **CURRICULUM CREDITS**

Study Abroad Session in Beijing, China:

CHIN 206 Culture through Conversation 3

CHIN 208 Contemporary China I 3

Delaware Campus:

CHIN 200 (or higher, excluding 205) 3

CHIN 3xx 3

### **FRENCH CERTIFICATE COURSES (FRANCE OR MARTINIQUE)**

#### **CURRICULUM CREDITS**

Study Abroad Session in Caen, France or Fort de France, Martinique:

FREN 206 Culture through Conversation and one of the following: 3

FREN 207 Contemporary Caribbean World (Martinique) 3

FREN 208 Contemporary France I (France) 3

Delaware Campus:

FREN 211 (or higher) French Reading and Composition 3

FREN 3xx 3

### **GERMAN CERTIFICATE COURSES**

#### **CURRICULUM CREDITS**

Study Abroad Session in Bayreuth, Germany:

GRMN 206 Culture through Conversation 3

GRMN 208 Contemporary Germany I 3

Delaware Campus:

GRMN 211 (or higher) German Reading and Writing 3  
GRMN 3xx 3

#### ITALIAN CERTIFICATE COURSES

##### CURRICULUM CREDITS

Winter Session in Siena, Italy:

ITAL 206 Culture through Conversation 3  
ITAL 208 Contemporary Italy I 3

Delaware Campus:

ITAL 211 (or higher) Italian Reading and Composition: Short Fiction 3  
ITAL 3xx 3

Alternate Plan for Italian Certificate

##### CURRICULUM CREDITS

Spring Semester in Siena:

ITAL courses at the 200-, 300- or 400-level 9  
plus one of the following, also taught abroad:  
ARTH 339 Art and Architecture of Europe 3  
HIST 339 Topics in Modern European History 3  
POSC 441 Problems of Western European Politics by Country 3

#### JAPANESE CERTIFICATE COURSES

##### CURRICULUM CREDITS

Study Abroad Session in Kobe, Japan:

JAPN 206 Culture through Conversation 3  
JAPN 208 Contemporary Japan I 3

Delaware Campus:

JAPN 200 (or higher, excluding 205) Japanese Grammar and Composition 3  
JAPN 3xx 3

#### SPANISH CERTIFICATE COURSES

(SPAIN OR LATIN AMERICA)

##### CURRICULUM CREDITS

Study Abroad Session in Spain or Latin America:

SPAN 206 Culture through Conversation 3  
and one of the following:  
SPAN 207 Latin America: Past and Present 3  
SPAN 208 Spain: Past and Present 3

Delaware Campus:

SPAN 200 (or higher, excluding 205) Spanish Composition and Grammar 3  
SPAN 3xx 3

### Geography

### ENVIRONMENTAL SCIENCE (BS)

A B.S. degree in Environmental Science is offered through the Department of Geography, in cooperation with the College of Earth, Ocean, and Environment, the Department of Geological Sciences, and the Department of Biological Sciences. Coursework includes geography, biology, geology, and other marine studies classes.

The program emphasizes a broad scientific understanding of the character, function, and analysis of environmental systems. For more information, please visit <http://www.udel.edu/Environmentsci>. For degree requirements, please see the Department of Geography section of this catalog.

### History

Telephone: (302) 831-2371  
<http://www.udel.edu/History/>  
Faculty Listing: <http://www.udel.edu/History/faculty.html>

The History Department offers several options to its undergraduate students. In addition to the regular major, students can choose a concentration in American, European, or World history. In conjunction with the College of Human Services, Education and Public Policy, it offers a History Education program for those choosing careers as secondary school social studies teachers. Concentration options are available for all majors. Collaboration with the Department of Foreign Languages and Literatures has resulted in a major combining languages with the history of the regions in which those languages are spoken. Honors Degree options are available for all majors and concentrations. The department also maintains an advisory program for prelaw students majoring in history.

The department encourages interdepartmental or double majors that enable a student to develop competence in two areas, such as history and art history, or history and literature. A Degree with Distinction is also possible. An advisor in the History Department can provide details.

### HISTORY (BA)

#### CURRICULUM CREDITS

University and College requirements.

#### MAJOR REQUIREMENTS

HIST 101 Western Civilization to 1648 OR HIST 103 World History I 3  
 HIST 102 Western Civilization: 1648 to the Present OR HIST 104 World History II 3  
 HIST 268 Seminar 3

Course in Asian, African, Latin American, or Middle Eastern history 3  
 History course before 1700, not including HIST 101 and HIST 103 3  
 History courses at or above the 300 level 12  
 History seminar at the 400 level or above (excluding HIST 464, HIST 468, HIST 491 and HIST 493 and Independent Study) 3

**ELECTIVES**  
 After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

**HISTORY (AMERICAN HISTORY) (BA)**

**CURRICULUM CREDITS**  
 University and College requirements.  
**MAJOR REQUIREMENTS**  
 HIST 101 Western Civilization to 1648 3  
 OR  
 HIST 103 World History I  
 HIST 102 Western Civilization: 1648 to the Present 3  
 OR  
 HIST 104 World History II  
 HIST 268 Seminar 3

Course in Asian, African, Latin American, or Middle Eastern history 3

History course before 1700, not including HIST 101 and HIST 103 3

Six (6) courses in the field of emphasis, four of which must be history courses at or above the 300-level. With written approval of the advisor, a student may take two of these courses outside the Department of History 18

History seminar at the 400-level or above (excluding HIST 464, HIST 468, HIST 491 and HIST 493 and Independent Study) 3

**ELECTIVES**  
 After required courses are completed, sufficient

elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

**HISTORY (EUROPEAN HISTORY) (BA)**

**CURRICULUM CREDITS**  
 University and College requirements.  
**MAJOR REQUIREMENTS**  
 HIST 101 Western Civilization to 1648 3  
 OR  
 HIST 103 World History I  
 HIST 102 Western Civilization: 1648 to the Present 3  
 OR  
 HIST 104 World History II  
 HIST 268 Seminar 3

Course in Asian, African, Latin American, or Middle Eastern history 3

Seven (7) courses in the field of emphasis, four of which must be history courses at or above the 300-level. With written approval of the advisor, a student may take two of these courses outside the Department of History. At least one of these courses has to be on the history of Europe before 1700, not including HIST 101 and HIST 103. 21

History seminar at the 400 level or above (excluding HIST 464, HIST 468, HIST 491 and HIST 493 and Independent Study) 3

**ELECTIVES**  
 After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

**HISTORY (WORLD HISTORY) (BA)**

**CURRICULUM CREDITS**  
 University and College requirements.  
**MAJOR REQUIREMENTS**  
 HIST 101 Western Civilization to 1648 3  
 OR  
 HIST 103 World History I  
 HIST 102 Western Civilization: 1648 to the Present 3

OR		
HIST104	World History II	
HIST 268	Seminar	3

Course in Asian, African, Latin American, or Middle Eastern history 3

Seven (7) courses in the field of emphasis, four of which must be history courses at or above the 300-level. With written approval of the advisor, a student may take two of these courses outside the Department of History. At least one of these courses has to be on non-Western history before 1700 not including HIST 103. 21

History seminar at the 400 level or above (excluding HIST 464, HIST 468, HIST 491 and HIST 493 and Independent Study) 3

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

### HISTORY EDUCATION (BA)

#### CURRICULUM CREDITS

University and College requirements.

#### MAJOR REQUIREMENTS

HIST 101	Western Civilization to 1648	3
HIST 102	Western Civilization: 1648 to the Present	3
HIST 103	World History I	3
HIST 104	World History II	3
HIST 268	Seminar	3

(Depending on its emphasis, this seminar course can count as three of the required credits in European, American, or Global history.)

History courses on the history of Europe 6

History courses on the history of the United States 12

History courses on the history of Asia, Africa, Latin America, or Middle East 6

The total number of HIST credits required in the major is 36. Course work must include a three credit History seminar at or above the 400 level (excluding HIST 464, HIST468, HIST 491, HIST 493, and independent study), twelve additional credits at or above the 300 level, and six credits at any level.

ECON 151	Introduction to Microeconomics	3
ECON 152	Introduction to Macroeconomics	3
POSC 150	The American Political System	3
GEOG 120	World Regional Geography	3

Additional credits as follows:

3 credits in Economics, 6 credits in Political Science, 6 credits in Geography 15

EDUC 413	Adolescent Development and Educational Psychology	4
EDUC 414	Teaching Exceptional Adolescents	3
EDUC 419	Diversity in Secondary Education	3
HIST 491	Planning a Course of Instruction (fall semester only) (minimum grade C-)	3
HIST 492	Integrating Instructional Technology into Social Studies Teaching	1
HIST 493	Seminar: Problems in Teaching History and Social Sciences (spring semester only)	3
EDUC 420	Reading in the Content Areas	1
EDUC 400	Student Teaching (spring semester only)	9

Grade of C- or better required in all required HIST, major related, and EDUC courses.

To be eligible to student teach, History Education students must have a GPA of 3.0 in their major and an overall GPA of 2.75. They must also pass teacher competency tests as established by the University Council on Teacher Education and complete a learning portfolio. Students must consult with the teacher education program coordinator to obtain the student teaching application and other information concerning student teaching policies.

CREDITS TO TOTAL A MINIMUM OF 124

### HISTORY, HISTORY EDUCATION (AMERICAN HISTORY) (BA)

#### CURRICULUM CREDITS

University and College requirements.

#### MAJOR REQUIREMENTS

HIST 101	Western Civilization to 1648	3
HIST 102	Western Civilization: 1648 to the Present	3
HIST 268	Seminar	3
	Course in Asian, African, Latin American, or Middle Eastern history	3

Six (6) courses in the field of emphasis, four of which must be history courses at or above the 300-level. With written approval of the advisor, a student may take two of these courses outside the Department of History. 18

History seminar at the 400-level or above (excluding HIST 464, HIST 468, HIST 491, HIST 493 and Independent Study) 3

HIST course work must include a three credit History seminar at or above the 400 level (excluding HIST 464, HIST 491, HIST 493, and independent study), twelve additional credits at or above the 300 level, and six credits at any level.

ECON 151	Introduction to Microeconomics	3
ECON 152	Introduction to Macroeconomics	3
POSC 150	The American Political System	3
GEOG 120	World Regional Geography	3

Additional credits as follows: 15  
3 credits in Economics, 6 credits in Political Science, 6 credits in Geography

EDUC 413	Adolescent Development and Educational Psychology	4
EDUC 414	Teaching Exceptional Adolescents	3
EDUC 419	Diversity in Secondary Education	3
HIST 491	Planning a Course of Instruction (fall semester only) (minimum grade C-)	3
HIST 492	Integrating Instructional Technology into Social Studies Teaching	1
HIST 493	Seminar: Problems in Teaching History and Social Sciences (spring semester only)	3
EDUC 420	Reading in the Content Areas	1
EDUC 400	Student Teaching (spring semester only)	9

Grade of C- or better required in all required HIST, major related, and EDUC courses.

To be eligible to student teach, History Education students must have a GPA of 3.0 in their major and an overall GPA of 2.75. They must also pass teacher competency tests as established by the University Council on Teacher Education and complete a learning portfolio. Students must consult with the teacher education program coordinator to obtain the student teaching application and other information concerning student teaching policies.

## ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

## HISTORY, HISTORY EDUCATION (EUROPEAN HISTORY) (BA)

### CURRICULUM CREDITS

University and College requirements.

### MAJOR REQUIREMENTS

HIST 101	Western Civilization to 1648	3
HIST 102	Western Civilization: 1648 to the Present	3
HIST 268	Seminar	3
	Course in Asian, African, Latin American, or Middle Eastern History	3

Seven (7) courses in the field of emphasis, four of which must be history courses at or above the 300-level. With written approval of the advisor, a student may take two of these courses outside the Department of History. 21

History seminar at the 400-level or above (excluding HIST 464, HIST 468, HIST 491 and HIST 493 and Independent Study) 3

HIST course work must include a three credit History seminar at or above the 400 level (excluding HIST 464, HIST 468, HIST 491, HIST 493, and independent study), twelve additional credits at or above the 300 level, and six credits at any level.

ECON 151	Introduction to Microeconomics	3
ECON 152	Introduction to Macroeconomics	3
POSC 150	The American Political System	3
GEOG 120	World Regional Geography	3

Additional credits as follows:

15

3 credits in Economics, 6 credits in Political Science, 6 credits in Geography

EDUC 413	Adolescent Development and Educational Psychology	4
EDUC 414	Teaching Exceptional Adolescents	3
EDUC 419	Diversity in Secondary Education	3
HIST 491	Planning a Course of Instruction (fall semester only) (minimum grade C-)	3

HIST 492	Integrating Instructional Technology into Social Studies Teaching	1
HIST 493	Seminar: Problems in Teaching History and Social Sciences (spring semester only)	3
EDUC 420	Reading in the Content Areas	1
EDUC 400	Student Teaching (spring semester only)	9

Grade of C- or better required in all required HIST, major related, and EDUC courses.

To be eligible to student teach, History Education students must have a GPA of 3.0 in their major and an overall GPA of 2.75. They must also pass teacher competency tests as established by the University Council on Teacher Education and complete a learning portfolio. Students must consult with the teacher education program coordinator to obtain the student teaching application and other information concerning student teaching policies.

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

### HISTORY, HISTORY EDUCATION (WORLD HISTORY) (BA)

#### CURRICULUM CREDITS

University and College requirements.

#### MAJOR REQUIREMENTS

HIST 101	Western Civilization to 1648	3
HIST 102	Western Civilization: 1648 to the Present	3
HIST 268	Seminar	3
	Course in Asian, African, Latin American, or Middle Eastern history	3

Seven (7) courses in the field of emphasis, four of which must be history courses at or above the 300-level. With written approval of the advisor, a student may take two of these courses outside the Department of History. 21

History seminar at the 400-level or above (excluding HIST 464, HIST 468, HIST 491, HIST 493 and Independent Study) 3

HIST course work must include a three credit

History seminar at or above the 400 level (excluding HIST 464, HIST 491, HIST 493, and independent study), twelve additional credits at or above the 300 level, and six credits at any level.

ECON 151	Introduction to Microeconomics	3
ECON 152	Introduction to Macroeconomics	3
POSC 150	The American Political System	3
GEOG 120	World Regional Geography	3

Additional credits as follows: 15  
3 credits in Economics, 6 credits in Political Science, 6 credits in Geography

EDUC 413	Adolescent Development and Educational Psychology	4
EDUC 414	Teaching Exceptional Adolescents	3
EDUC 419	Diversity in Secondary Education	3
HIST 491	Planning a Course of Instruction (fall semester only)(minimum grade C-)	3
HIST 492	Integrating Instructional Technology into Social Studies Teaching	1
HIST 493	Seminar: Problems in Teaching History and Social Sciences (spring semester only)	3
EDUC 420	Reading in the Content Areas	1
EDUC 400	Student Teaching (spring semester only)	9

Grade of C- or better required in all required HIST, major related, and EDUC courses.

To be eligible to student teach, History Education students must have a GPA of 3.0 in their major and an overall GPA of 2.75. They must also pass teacher competency tests as established by the University Council on Teacher Education and complete a learning portfolio. Students must consult with the teacher education program coordinator to obtain the student teaching application and other information concerning student teaching policies.

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

HISTORY/CLASSICS, FRENCH, GERMAN,  
RUSSIAN, SPANISH (BA)

#### CURRICULUM CREDITS

University and College requirements.

#### MAJOR REQUIREMENTS

HIST 101 Western Civilization to 1648 3

HIST 102 Western Civilization: 1648 to the  
Present 3

HIST 268 Seminar 3

Five 300-level HIST courses, at least two of which  
must deal with countries that use the chosen  
foreign language 15

History seminar at the 400-level or above  
(excluding HIST 464, HIST468, HIST 491,  
HIST 493 and Independent Study) 3

AND one of the following language options:

#### Classics:

Civilization: Two classical civilization (or culture)  
courses: e.g., FLLT 202 (Biblical and Classical  
Literature) and FLLT 316 (Mythology) 6

Literature: Either 9 credits of Latin at the  
200-level or above and 3 credits of Latin at the  
300-level or above -OR- GREK 213 and GREK 214  
and 6 credits of Latin at the 200-level or above  
12

#### French:

Civilization: 3

FREN 325 French Civilization

or

FREN 326 French Civilization II

or

FREN 453 French Civilization III

#### Literature:

FREN 301 Introduction to French Literature:  
Prose 3

FREN 302 Introduction to French Literature:  
Poetry and Theatre 3

FREN 4xx level literature course 3

Two FREN courses at the 200, 300 or 400-level 6

#### German:

#### Civilization:

GRMN 325 German Civilization and Culture 3

#### Literature:

GRMN311 Introduction to German Literature I 3

GRMN 312 Introduction to German Literature II 3

GRMN 400-level literature course 3

Two GRMN courses at the 200, 300 or 400-level  
6

#### Russian:

#### Civilization:

RUSS 325 Russian Civilization 3

#### Literature:

RUSS 310 Introduction to Russian Literature I 3

RUSS 312 Introduction to Russian Literature II 3

RUSS 400-level literature course 3

Two RUSS courses at the 200, 300 or 400-level  
6

#### Spanish:

Note: Students must choose one of the  
following tracks and select courses accordingly:  
Peninsular track to include SPAN 325, SPAN 301  
and SPAN 302

or

Latin American track to include SPAN 326, SPAN  
303 and SPAN 304

#### Civilization:

SPAN 325 Spanish Civilization and Culture 3  
OR

SPAN 326 Latin American Civilization and  
Culture

#### Literature:

SPAN 301 Survey of Spanish Literature 6  
and

SPAN 302 Survey of Spanish Literature

OR

SPAN 303 Survey of Spanish-American  
Literature

and

SPAN 304 Survey of Spanish-American  
Literature

SPAN 400-level literature course 3

Two SPAN courses at the 200, 300 or 400-level 6

#### ELECTIVES

After required courses are completed, sufficient  
elective credits must be taken to meet the  
minimum credit requirement for the degree.

Honors Degree: An Honors Degree option is also  
available.

CREDITS TOTOTAL A MINIMUM OF 124

## HONORS- HISTORY EDUCATION; HISTORY/ FOREIGN LANGUAGE (BA)

To receive the BA with Honors, students must complete the following:

1. All requirements for the BA with a major in History, History Education, or History/Foreign Language.
2. All the University's generic requirements for the Honors Degree.

For all the History degrees/concentrations, including the joint degree with a Foreign Language, at least six of the Honors credits in the major must be at the 300 level or above.

### MINOR IN HISTORY

A student may minor in history by taking 15 credits as follows:

Any two of the following	6
HIST 101	Western Civilization to 1648
HIST 102	Western Civilization: 1648 to the Present
HIST 103	World History I
HIST 104	World History II
HIST 205	United States History
HIST 206	United States History

Three HIST courses at or above the 300 level (excluding HIST 491 and HIST 493)

Many history courses fulfill Group B requirements of the College of Arts and Sciences.

### Minor in Irish Studies

A student may minor in Irish Studies by earning 15 credits in recommended courses, all at or above the 300-level. Required courses include ENGL 351 and HIST 373. For further information, contact Professor John Montano at (302) 831-0804 or Professor Kevin Kerrane at (302) 831-8992.

### Minor in Islamic Studies

Contemporary events dramatically underscore the profound significance of Islam, and the urgent need for a better understanding of global Islam and the Islamic World. Islam has not only become an important force in the global cultural, political and economic spheres, it has become a crucial aspect of the American and Western experience due primarily to the growth

of Muslim communities in the West. The minors in Islamic Studies and Islamic Studies with Language are designed to empower students with knowledge of Islam and the Islamic world. For further information contact Professor Muqtedar Khan at mkhan@udel.edu.

The Islamic studies minor without language will require a total 18 credits. In order to complete the minor, students will take two core courses for six credits and four additional courses, three of which will be at the 300 level or above. The six courses that will lead to the Islamic Studies minor are:

Core requirements	6
POSC 201	Introduction to Global Islam
A second course at the 200-300 level from HIST 381, HIST 377, ARTH 236, or POSC 377	
Twelve additional credits	12
to include at least three 300-level courses.	
Courses are to be chosen from the following approved list:	
ANTH 212	Peoples and Cultures of the Muslim World
ANTH 313	Immigrant Islam: The Muslim Diaspora to the West
ANTH 314	Islam and Gender
ARTH 236	Arts of the Islamic World
ENGL 382	Multicultural Literature in English (when offered as the Crescent and the Cross: Contemporary Fiction from Arab Nations and American Writers on the Arab World)
HIST 130	Islamic Near East 600-1500
HIST 131	Islamic Near East: 1500-Present
HIST 340	Ancient Near East and Greece
HIST 377	Radicalism and Revolution: Islamic Movement/Modern Middle
HIST 378	Nationalism in the Modern Middle East
HIST 380	History of the Arab-Israeli Conflict
HIST 381	Islam and the West: The History of Mutual Perceptions
HIST 444	Seminar: Women in the Islamic Middle East
PHIL 312	Late Medieval Philosophy
POSC 377	Arab-Israeli Politics
POSC 410	Islam and Global Affairs
POSC 430	Intermedic Relations of Islam and America

The designated advisor of the minor will have the authority to make course substitutions for required courses.

The Islamic studies minor with language will require completion of six non-language courses comprising 18 credits, and, additionally, completion of the Arabic language sequence through the 107 level.

Core requirements 6  
POSC 201/HIST 201 Introduction to Global Islam

A second course at the 200-300 level from HIST 381, HIST 377, ANTH 212, ARTH 236, or POSC 377

Twelve additional credits 12  
to include at least three 300-level courses.  
Courses are to be chosen from the following approved list:

ANTH 212	Peoples and Cultures of the Muslim World
ANTH 313	Immigrant Islam: The Muslim Diaspora to the West
ANTH 314	Islam and Gender
ARTH 236	Arts of the Islamic World
ENGL 382	Multicultural Literature in English (when offered as the Crescent and the Cross: Contemporary Fiction from Arab Nations and American Writers on the Arab World)
HIST 130	Islamic Near East 600-1500
HIST 131	Islamic Near East: 1500-Present
HIST 340	Ancient Near East and Greece
HIST 377	Radicalism and Revolution: Islamic Movement/Modern Middle
HIST 378	Nationalism in the Modern Middle East
HIST 380	History of the Arab-Israeli Conflict
HIST 381	Islam and the West: The History of Mutual Perceptions
HIST 444	Seminar: Women in the Islamic Middle East
PHIL 312	Late Medieval Philosophy
POSC 377	Arab-Israeli Politics
POSC 410	Islam and Global Affairs
POSC 430	Intermestic Relations of Islam and America

Arabic language courses 12  
ARAB 105, ARAB 106, and ARAB 107 (student placement in first course determined according to language placement guidelines)

The designated advisor of the minor will have the authority to make course substitutions for required courses.

## Jewish Studies

Telephone: (302) 831-3324  
E-mail: [kaufman@udel.edu](mailto:kaufman@udel.edu)  
<http://www.udel.edu/jsp/index.html>

The Jewish Studies Program administers the undergraduate minor in Jewish Studies. The minor examines the Jewish thought and culture in all fields of Western and non-Western civilization. This involves the study of the texts, language, history, and culture of the Jewish people in a variety of environments and in historical and contemporary contexts. As an academic discipline, Jewish Studies concentrates on its own inner continuities, as well as the ways it has affected, and been affected by, its host cultures.

## MINOR IN JEWISH STUDIES

The interdisciplinary minor in Jewish Studies requires 16 credits. Students must take a minimum of 16 credits from the selection of Jewish Studies courses offered by the Jewish Studies Program (JWST) or cross-listed with another department. The one credit course, JWST 201: Issues and Ideas in Jewish Studies, is the only course required for the minor. Jewish Studies courses are cross-listed with a number of departments including philosophy, English, sociology, history, political science, anthropology and foreign languages. Only 3 credits of Hebrew language and only 3 credits from courses offered during study abroad programs can be counted toward the minor. Three credits of independent course credit can be counted, with approval of the Director of the Jewish Studies Program.

## Journalism

<http://www.english.udel.edu/journalism>

The Journalism minor is designed to provide a broad, interdisciplinary approach to journalism education. Coursework focuses on print and broadcast media, with attention to web publishing. Students are encouraged to explore coursework outside the traditional boundaries of the English and Communication departments to include study in areas such as economics, political science, international relations, and visual communications.

This minor is open to students majoring in any academic discipline and across all colleges.

Eighteen credits are required for the Journalism minor. Coursework in the minor must include at least two courses outside a student's major field. In order to declare a Journalism minor, students must have taken or be enrolled in JOUR 301. Students must receive a grade of B or better in JOUR 301 or receive permission from program faculty to continue in the minor.

#### MINOR IN JOURNALISM

JOUR 301 Introduction to Journalism 3

One of the following courses: 3

ENGL 307 News Writing and Editing

COMM 329 Broadcast Writing

One of the following courses: 3

ENGL 308 Reporter's Practicum

COMM 326 Field Production/Reporting

Three of the following courses: 9

Note: Students may take a "Topics" course up to two times and count it towards the minor

COMM 245 Introduction to Mass Media

ENGL 309 Feature and Magazine Writing

ENGL 310 Copy Editing and Page Design

COMM 345 Media Law

ENGL 406 Nonfiction Workshop

ENGL 407 Advanced Reporting

ENGL 408 Sports Reporting

ENGL 409 Topics in Journalism

COMM 418 Topics in Mass Communication

ENGL 416 Designing Online Information

COMM 425/POSC 425 Advanced Topics in Politics and Broadcast Journalism

COMM 340/POSC 340 Politics and the Media

JOUR 425 Ethics and Issues in Journalism

COMM 427 Broadcast News

COMM 364/ENGL 464 Internship

POSC 444/COMM 444 Global Agenda

ECON 100 Economic Issues and Policies

ECON 151 Introduction to Microeconomics (Prices and Markets)

Note: Journalism minor candidates may count either ECON 100 or ECON 151 towards the Journalism minor, but not both.

COMM 301 Introduction to Communication Research Methods

#### Latin American Studies

Latin American Advisor: Persephone Braham,  
209 Jastak-Burgess Hall  
Telephone: 302-831-1565

Email: braham@udel.edu

http://www.udel.edu/LAS

Faculty Listing: www.udel.edu/LAS/lasp-faculty.html

The Latin American Studies Program offers both a major and minor designed to prepare undergraduate students for careers relating to Latin America. This interdisciplinary program provides students with comprehensive training in Spanish language as well as Latin American literature, history, politics, geography and anthropology.

Many career opportunities are open to students who major in Latin American Studies. Because of their linguistic training and in-depth knowledge of the area, graduates of the program often find employment in government, including the foreign services, as well as in international business and banking, social work, educational organizations and non-governmental organizations that work extensively in Latin America. In addition, graduates are well prepared to pursue advanced degrees in Latin American Studies.

#### LATIN AMERICAN STUDIES (BA)

##### CURRICULUM CREDITS

University and College requirements.

##### MAJOR REQUIREMENTS

ANTH 375 Peoples and Cultures of Modern Latin America 3

GEOG 226 Geography of Latin America 3

HIST 135 Introduction to Latin American History 3

POSC 426 Latin American Political Systems 3

SPAN 326 Latin American Civilization and Culture 3

One of the following seven courses: 3

ANTH 251 Ethnic Arts

ANTH 265 High Civilizations in the Americas

ANTH 323 Pre-history of South America

ANTH 337 South American Indians

ANTH 338 Arts and Crafts of Native South America

ANTH 351 Race and Ethnicity in Latin America

ANTH 380 Peoples and Cultures of Mexico and Central America

One of the following six courses: 3

HIST 331/BAMS 331 History of the Caribbean I

HIST 332/BAMS 332 History of the Caribbean II

HIST 349	Modern Hispanic Societies: 1800-present
HIST 336	Topics in Latin American History
HIST 430	Twentieth Century Latin American Revolutions
HIST 477	Studies in Latin American History
POSC 450	Problems in Latin American Politics 3

One of the following eleven courses: 3

SPAN 303	Survey of Spanish-American Literature I
SPAN 304	Survey of Spanish-American Literature II
SPAN 355	Special Topics (from study abroad in Latin America)
SPAN 415	Latin American Literature in its Political Context
SPAN 430	Latin American Novel and Cinema
SPAN 447	Contemporary Hispanic Fiction by Women
SPAN 455	Selected Authors, Works and Themes*
SPAN 460	Topics: Contemporary Hispanic Literature 1936-Present*
SPAN 462	Topics: Hispanic Short Fiction*
SPAN 464	Contemporary Spanish American Literature by Women
SPAN 475	Topics: Hispanic Culture and Civilization*

\*When topic deals with Latin America

Two additional courses selected from the  
courses listed above or from the following: 6

ARTH 232	Art of Latin America
ARTH 338	Mayan Art and Architecture
ARTH 419	Seminar in Spanish Art of the Golden Age
ARTH 440	Seminar in Latin American Art
ECON 311	Economics of Developing Countries
(Prerequisites: ECON 151, ECON 152)	
FREN 459	Negritude, Antillanite, Creolite
PORT 207	Contemporary Brazil
PORT 216	Intensive Portuguese for Spanish Speakers I

SPAN 207	Contemporary Latin America I
OR	
SPAN 307	Contemporary Latin America II
WOMS 250	Topics in International Women's Studies: Latin America

#### ELECTIVES

After required courses are completed, sufficient

elective credits must be taken, in consultation  
with the student's academic advisor, to meet the  
minimum credit requirement for the degree.

#### Language Requirement

In addition to the 33 credits required of the  
major, students must complete SPAN 201 or  
demonstrate equivalent proficiency. Course work  
in Portuguese is also recommended.

#### Study Abroad

Study abroad at a Latin American site for either  
a semester, or a winter or summer session, is  
highly recommended. The Puebla, Mexico spring  
semester is designed for Latin American Studies  
majors and minors.

#### Advisement and substitutions

In selecting courses for the major, students are  
encouraged to meet with the Latin American  
Studies advisor and choose courses that together  
reflect a regional (e.g. Mexico, Caribbean, Central  
or South America) or topical (e.g. colonialism,  
development, culture) focus. Substitutions for  
specified courses may be made with permission  
of the Director of Latin American Studies so  
long as the same disciplinary distribution is  
maintained.

CREDITS TOTOTAL A MINIMUM OF 124

### HONORS - LATIN AMERICAN STUDIES (BA)

All Honors degree candidates must complete the  
following:

1. All requirements for the BA in Latin American  
Studies.
2. All of the University's generic requirements for  
the Honors Baccalaureate degree.

### MINOR IN LATIN AMERICAN STUDIES

#### Purpose

This is an interdisciplinary program designed to  
provide undergraduates with an organized focus  
for their interests in Latin America. The program  
is designed to enhance, rather than substitute  
for, a student's disciplinary major.

Program Requirements: A minimum of 18 credits  
is required from the following courses, selected  
from at least four departments:

HIST 135, HIST 336, HIST 430, HIST 477  
GEOG 226

SPAN 303, SPAN 304, SPAN 326, SPAN 415, SPAN 430, SPAN 464  
ANTH 265, ANTH 323, ANTH 337, ANTH 338, ANTH 375, ANTH 380  
ARTH 232, ARTH 419, ARTH 440  
PORT 207, PORT 216  
POSC 426, POSC 431, POSC 450

#### Language Requirement

In addition to the 18-credit minimum, students must complete SPAN 107 or demonstrate equivalent proficiency on a placement test. Equivalent competence in Portuguese will be allowed. The study of both languages is strongly encouraged.

#### Study Abroad

Study abroad at a Latin American site for either a semester, or a winter or summer session, is highly recommended. The Puebla, Mexico spring semester is designed for Latin American Studies majors and minors.

#### Advisement and substitutions

Substitutions for specified courses may be made with permission of the Director of Latin American Studies so long as the same disciplinary distribution is maintained.

### Legal Studies

Director: Professor Eric Rise  
Telephone: (302) 831-0367  
Email: [legal-studies@udel.edu](mailto:legal-studies@udel.edu)  
<http://www.udel.edu/Legal.Studies/>  
Faculty Listing: <http://www.udel.edu/Legal.Studies/faculty.html>

The minor in Legal Studies provides undergraduate students with the opportunity to explore the law from an interdisciplinary perspective. The law is central to theories and research in the social sciences, business, philosophy, and public policy. Courses concerned with law are available in a variety of departments including political science, sociology, communication, economics, history, accounting (business law), finance (corporate governance), food and resource economics (environmental law), marine studies, philosophy (jurisprudence), education and urban affairs.

The minor program provides coherence and guidance in the study of law in at least four ways. First, each student minoring in Legal Studies is provided with an advisor who guides the student in constructing a coherent program. Second, the minor provides students with an

opportunity to examine the law from a variety of discipline perspectives. Third, the program offers both a substantive introduction to law and an interdisciplinary introductory course in legal studies. Finally, it offers an interdisciplinary capstone experience with a senior seminar that requires a research paper.

This program is designed for any student who is interested in examining the law and its influence on society from a variety of perspectives. Legal studies is not a "pre-law" program, and it does not offer paralegal training. However, the program is a suitable minor for those who plan to pursue professional training. For information on Pre-Law Advisement, consult the Pre-Law web site at [www.udel.edu/prelaw](http://www.udel.edu/prelaw).

In addition to offering a minor in Legal Studies, the program sponsors faculty seminars, a lecture series in the law, a student conference and research paper competition, and films.

### MINOR IN LEGAL STUDIES

#### CURRICULUM CREDITS

##### Core Legal Studies Courses

LEST 301 Introduction to Legal Studies  
(same as CRJU 301) 3

or

LEST 380 Introduction to Law (same as  
POSC 380)

LEST 210 The Law and You 1

LEST 401 Senior Seminar in Legal Studies  
(or substitute approved by the Director of LEST)  
3

##### Interdisciplinary Courses

One substantive law course 3  
(selected from the list of ten substantive law  
courses below)

Two electives (selected from the list below) 6

TOTAL CREDITS 16

1. Among the interdisciplinary courses, only one course can be required by the students' major or listed (or cross-listed) in the students' major department. Interdisciplinary courses must be selected from at least two different departments outside the student's major.

2. If students are approved to substitute a course in their own major for LEST 401, then none of the interdisciplinary courses may come from the students' major department.

If a student has more than one major, the two rules above will be enforced for only one of the majors (whichever one the student chooses).

**ELECTIVES:**

**Accounting**

ACCT 350 Business Law I  
 ACCT 351 Business Law II  
 ACCT 352 Law and Social Issues in Business

**Communication**

COMM 345 Legal Issues of the Mass Media  
 (same as LEST 345)

**Computer and Information Sciences**

CISC 367 Intellectual Property in the Digital Age

**Criminal Justice**

CRJU 202 Problems of Criminal Judiciary  
 CRJU 203 Problems of Corrections  
 CRJU 301 Introduction to Legal Studies  
 (same as LEST 301)  
 CRJU 311 Capital Punishment and the Law  
 CRJU 320 Introduction to Criminal Law  
 CRJU 324 American Constitutional History  
 (same as HIST 324)  
 CRJU 345 Sociology of Law  
 (same as SOCI 345)  
 CRJU 346 Psychology and the Law  
 (same as PSYC 346)  
 CRJU 375 Criminal Procedure  
 CRJU 425 Criminal Law and Social Policy  
 CRJU 428 Corporate Crime  
 (same as SOCI 428)  
 CRJU 435 Punishing Speech  
 CRJU 446 \*\* Judging the Jury  
 CRJU 450 Prisoners and the Law  
 CRJU 456 Lawyers and Society  
 (same as SOCI 456)  
 CRJU 457 Criminal Evidence  
 CRJU 475 \*\* Social Science and the Law  
 (same as LEST 475)

**Economics**

ECON 306 Economic Theory of Politics  
 (same as POSC 306)  
 ECON 360 Government Regulation of  
 Business  
 ECON 408 Economics of Law (same as LEST  
 408)  
 ECON 461 Industrial Organization and  
 Antitrust  
 ECON 463 Economics of Regulation

**Education**

EDUC 240 Legal and Ethical Issues in  
 American Education

**Finance**

FINC 418 \*\*Seminar in Corporate  
 Governance

**Food and Resource Economics**

FREC 450 \*\*Topics in Environmental  
 Law(same as LEST 450)

**Health, Nutrition, and Exercise Sciences**

HESC 347 Legal Aspects of Sport  
 Management

**History**

HIST 309 U.S. Business and Political  
 Economy  
 HIST 324 American Constitutional History  
 (same as CRJU 324)  
 HIST 479 Law and Social Change in  
 Modern Japan

**Legal Studies**

LEST 210 The Law and You  
 LEST 301 Introduction to Legal Studies  
 (same as CRJU 301)  
 LEST 345 Legal Issues of the Mass Media  
 (same as COMM 345)  
 LEST 380 Intro to Law  
 (same as POSC 380)  
 LEST 383 Language Power and the Law  
 (same as LING 383)  
 LEST 385 Language and the Law: Corporate  
 Interpretation  
 (same as LING 385)  
 LEST 401 Legal Studies Senior Seminar  
 LEST 408 Economics of Law  
 (same as ECON 408)  
 LEST 450 \*\*Topics in Environmental Law  
 (same as FREC 450)  
 LEST 475 \*\* Social Science and the Law  
 (same as CRJU 475)  
 LEST 646 Administrative Law and Policy  
 (same as UAPP 646)  
 LEST 649 \*\*Civil Rights Law and Policy  
 (same as UAPP 649)  
 LEST 673 \*\*International Law (  
 same as MAST 673, POSC  
 604)

**Linguistics**

LING 383 Language Power and the Law  
 (same as LEST 383)  
 LING 385 Language and the Law: Corporate  
 Interpretation (same as LEST

385)

#### Marine Studies

- MAST 673 \*\*International Law (same as LEST 673, POSC 604)  
MAST 674 \*\* Legal Aspects of the Coastal Zone  
MAST 678 Admiralty and Maritime Law (same as UAPP 678)

#### Philosophy

- PHIL 446 Philosophy of Law

#### Political Science and International Relations

- POSC 306 Economic Theory of Politics (same as ECON 306)  
POSC 380 Intro to Law (same as LEST 380)  
POSC 401 Topics in Constitutional Law  
POSC 402 Civil Liberties: Individual Freedoms  
POSC 403 Civil Liberties: Equal Protection  
POSC 404 Judicial Process  
POSC 405 Constitutional Law of the United States  
POSC 423 Congress and Public Policy  
POSC 604 \*\* International Law (same as LEST 673, MAST 673)  
POSC 805 \*\* Seminar in Public Law: Law and Courts in the Global Order

#### Psychology

- PSYC 346 Psychology and the Law (same as CRJU 346)

#### Sociology

- SOCI 330 Population, Law and Society  
SOCI 345 Sociology of Law (same as CRJU 345)  
SOCI 428 Corporate Crime (same as CRJU 428)  
SOCI 456 \*\*Lawyers and Society (same as CRJU 456)  
SOCI 637 \*\* Law and Society in Historical Perspective  
SOCI 655 \*\* Law and Society  
SOCI 658 \*\* Social Science, Law and the Legal Process

#### Urban Affairs and Public Policy

- UAPP 646 Administrative Law and Policy (same as LEST 646)  
UAPP 649 \*\*Civil Rights Law and Policy (same as LEST 649)  
UAPP 678 Admiralty and Maritime Law (same as MAST 678)

\*\* Courses that qualify as substitutes for LEST 401 (Senior Seminar); other courses may also

qualify. All substitutions must be approved by the Director of Legal Studies.

#### SUBSTANTIVE LAW COURSES:

- |          |   |
|----------|---|
| ACCT 350 | Business Law I                          |
| ACCT 351 | Business Law II                         |
| ACCT 352 | Law and Social Issues in Business       |
| COMM 345 | Legal Issues of the Mass Media          |
| CRJU 320 | Introduction to Criminal Law            |
| CRJU 375 | Criminal Procedure                      |
| POSC 401 | Topics in Constitutional Law            |
| POSC 402 | Civil Liberties: Individual Freedoms    |
| POSC 403 | Civil Liberties: Equal Protection       |
| POSC 405 | Constitutional Law of the United States |

#### Liberal Studies

This degree differs from the regular Bachelor of Arts degree in that it requires 60 credits at the 300-level or higher. The most significant difference from the more conventional degree, however, is that, instead of a major, students pursue a sequence of courses of their choice that are consistent with their stated educational goals.

Admission into the Bachelor of Arts in Liberal Studies is determined by a faculty committee appointed by the Dean of the College of Arts and Sciences, which reviews student proposals and approves them or makes suggestions on improving or strengthening them. To be eligible to apply to the program, a student must have a cumulative grade index of 2.25 and must have completed no more than 75 credit hours at the time of the application. The committee looks for proposals that are cohesive and realistic, designed to afford the student knowledge in some broad, interdisciplinary field or focused more narrowly and in greater depth on one theme and, in general, involving course combinations that would not be feasible within one of the standard degree options. A minimum of 39 credit hours must be related to the main theme of the BAL.S. project and a minimum grade of C- must be earned in these core courses. Students who are accepted into the Medical Scholars program complete a major in Liberal Studies using the Medical Scholars template.

Advisement and planning are essential in formulating such a proposal. Students are urged

to seek advice from faculty members and the Program Director as they work on drawing up their programs. The screening committee requires the applications to carry the signature of three faculty members including the candidate's primary advisor. Proposals should be submitted to the Program Director by October 15 or by March 15. Application forms and further information are available on the web at [www.art-sci.udel.edu/bals](http://www.art-sci.udel.edu/bals).

## HONORS- LIBERAL STUDIES (BA)

The recipient must complete:

1. All requirements for the Bachelor of Arts in Liberal Studies degree.
2. All the University's generic requirements for the Honors Degree .
3. The student's BAL.S. advisor will designate Honors Courses that will count as courses in the major.

## Linguistics and Cognitive Science

Telephone: (302) 831-6806  
<http://www.ling.udel.edu/ling/>  
Faculty Listing: <http://www.ling.udel.edu/ling/>

The Department of Linguistics and Cognitive Science offers a BS in Cognitive Science and two minors, one in Linguistics and one in Cognitive Science.

As part of the major in Cognitive Science, concentrations are possible in Linguistics and in a variety of areas of Cognitive Science. The department also has concentration templates for students interested in Pre-professional Speech Pathology. Many of the courses offered by the department fulfill the Group A, Group C, and Group D breadth requirement in the College of Arts and Sciences as well as the University's multicultural requirement.

## COGNITIVE SCIENCE (BS)

The interdisciplinary field of cognitive science studies the human mind viewed as a computational process. It lies at the confluence of computer science, educational and cognitive development, linguistics, neuroscience, neurobiology, philosophy, psychology, and

certain areas of mathematics. Cognitive science has arguably been the most important development in the study of human thinking in the past twenty years; its influence can be seen across a wide variety of disciplines, from logic to communication disorders.

As a nascent discipline, cognitive science seeks to model and explain such phenomena as language, reasoning and perception. The goal of cognitive science as a theoretical discipline is to determine those knowledge structures and processes that characterize organisms as biological information processing systems, as well as to explain how these organisms come to possess this knowledge. Applied cognitive science takes the results of this research to such diverse areas as language technology, cognitive approaches to education, human computer interaction etc. The latter field addresses the most effective use of technology by people and includes the study of user interfaces, graphical displays, visualization of data, virtual reality, technology-based education, intelligent agents, and computer-based assistive technology for persons with disabilities. At the University of Delaware the discipline of linguistics plays an especially strong role in cognitive science. This is true because linguists have developed successful models of natural languages in central areas of cognition, and because the Department of Linguistics and Cognitive Science houses the BS in Cognitive Science.

## Admission and Retention Requirements

During the freshman year students may declare a Cognitive Science Interest Major, but admission to the program as a Cognitive Science Major requires the completion of at least 28 credits of study. The minimal GPA for admission to the program will be 2.0.

## CURRICULUM CREDITS DEGREE REQUIREMENTS Required Courses (26 hours/credits)

All of the following:

CGSC 100	FirstYear Experience	1
CGSC 170	Introduction to Cognitive Science (foundation course)	3
CGSC 314	Brain and Behavior	3
CGSC 485	Seminar in Cognitive Science (senior seminar)	3
LING 101	Introduction to Linguistics	3
PSYC 100	General Psychology and	3

One of the following:

BISC 104 Principles of Biology with Laboratory 4

or

BISC 207 Introductory Biology I 4

and

One of the following:

CISC 108 General Computer Science 3

or

CISC 103 Introduction To Computer Science with Web Applications 3

or

CISC 181 Introduction to Computer Science II 3

or

CISC 280 Program Development Techniques

One of the following:

PHIL 205 Logic 3

or

MATH 201 Introduction to Statistical Methods I 3

or

MATH 205 Statistical Methods 4

or

PSYC 209 Measurement and Statistics 3

#### Concentration Requirement

#### CONCENTRATION REQUIREMENT

In addition to completing the required core, students will develop, with the aid of a faculty advisor, a concentration program individualized to their interests of at least 18 credit hours. Concentrations may include a focus of linguistics or pre-professional speech pathology and speech science, natural language processing, animal cognition, artificial intelligence, computer modeling of cognition, or psychological models of cognition, among other possibilities.

The faculty advisor must be among the core departmental faculty listed on the departmental website (<http://www.ling.udel.edu/ling>). Further, the concentration program must be proposed by the student, approved by the student's faculty advisor and approved by the Undergraduate Studies Committee of the department. All concentration programs will consist of at least 18 credits drawn from a list of eligible courses which will be maintained on the Department's website. Some concentrations may exceed 18 hours. The list of eligible courses will be updated and posted annually on the Departmental website. Substitute courses may be proposed by the student with the approval of the faculty advisor.

**FirstYear Experience and Discovery Learning**  
All first-year students in the Cognitive Science Interest major must complete a FirstYear Experience (FYE). The course, CGSC 100, will meet the first 8 weeks of the semester.

All students are required to participate in a discovery or experiential learning experience. The available Discovery or Experiential Learning Programs are posted on the departmental website (<http://www.ling.udel.edu/ling>). The Department currently offers opportunities for study abroad and internship possibilities which meet this requirement.

#### Capstone Course

Senior majors are brought together for a seminar on topics in cognitive science: CGSC 485 Seminar in Cognitive Science. The course requires participants to engage in research that demonstrates grasp of the issues in the field as a whole and in their chosen focus. This work may lead to an Honors Thesis for qualified students.

#### University and College Requirements

In order to receive the degree of BS in Cognitive Science all students must meet the University requirements for a bachelor's degree. Students are also required to meet the skill requirements of the College of Arts and Sciences.

#### College Breadth Requirements

Students must meet the following breadth requirements:

#### Group A Creative Arts and Humanities

These courses provide students with an understanding and appreciation of the visual and performing arts, of aesthetic forms, designs, or craftsmanship, or of literary, philosophical, and intellectual traditions. Courses may focus on a single aesthetic form or intellectual tradition, or cross-cultural comparisons. Nine credits of courses representing at least two departments or appropriate instructional units. 9

#### Group B History and Cultural Change 9

These courses provide students with an understanding of the sources and forces of historical changes in ideas, beliefs, institutions, and cultures. Courses may address social, cultural, intellectual, economic, technological, artistic, scientific, and political development, changes in a discipline, or globalization and its effects. Nine credits of courses representing at least two departments or appropriate instructional units.

Group C Social and Behavioral Sciences 9  
These courses provide students with an understanding of the behavior of individuals and social groups in the context of their human and natural environments. Courses emphasize the empirical findings, applications, and methods of the social and behavioral sciences. Nine credits of courses representing at least two departments or appropriate instructional units.

Group D Mathematics, Natural Sciences and Technology 10  
These courses provide students with an understanding of fundamental and/or applied concepts and phenomena from mathematics, logic, natural or physical sciences, and technology including quantitative reasoning and methods used to approach and solve problems. Ten credits of courses representing at least two departments or appropriate instructional units and including a minimum of one course with an associated laboratory. The laboratory component provides exposure to the working methods of science.

If the grade earned is sufficient, a course may be applied toward more than one requirement (e.g., breadth and major requirements), but the credits are counted only once toward the total credits for graduation. If all but one course in a group has been taken in one department or program, a course cross-listed with that program will not satisfy the distribution requirement.

Requirements for Honors BS in Cognitive Science  
The recipient must complete:

1. All requirements for the Bachelor of Science degree in Cognitive Science:

- \* A cumulative GPA of at least 3.400 at the time of graduation
- \* At least 30 credits earned in Honors courses
- \* At least 12 credits in the major department or in courses in collateral disciplines specifically required for the major;
- \* At least 12 credits in 300-level courses or higher, not including the first-year interdisciplinary Honors colloquium;
- \* Three credits in an Honors Degree seminar or Honors capstone course or comparable senior experience approved by the major and the Honors Program, to be completed in one of the last two semesters of the student's degree program.

2. All of the University's generic requirements for the Honors Baccalaureate degree.

Combined BS and M.A. Option

COMBINED BS AND M.A. OPTION  
Qualified undergraduate students in the BS in Cognitive Science as well as students completing a Bachelors degree in related fields like Anthropology, Computer and Information Science, Philosophy and Psychology (and other fields by application) may apply for the Combined BS and M.A. option, which combines the requirements of the undergraduate and master's degree programs in Cognitive Science and Cognitive Science and Linguistics. Whereas the traditional programs for the BS and M.A. degrees in Cognitive Science, and Linguistics and Cognitive Science involve 4 years of undergraduate work and 2 years of graduate work, the Combined BS and M.A. option enables students to earn both degrees in a 5-year period. Students who complete the Combined BS and M.A. program will graduate with both a Bachelor of Science degree in Cognitive Science and a Master of Arts degree in Linguistics and Cognitive Science. Students who are candidates for the Combined BS and M.A. option, and who complete the requirements for the BS but fail to complete the additional M.A. requirements, will receive the BS degree.

A. Admission into the Combined BS and M.A. Program

Students may apply for admission to the Combined BS and M.A. program at the end of the sophomore year. The application process requires submission of a completed graduate application form for review by the Departmental Graduate Studies Committee. Initial admission will be based upon the student's ability to meet the following recommended entrance criteria:  
¥ Combined mathematics and verbal SAT scores of at least 1200  
¥ An undergraduate GPA of at least 3.25  
¥ Completion of all core courses for the BS in Cognitive Science other than CGSC 485  
¥ Submission of an in-person writing sample, based on work completed in a Cognitive Science course  
Admission is competitive. Meeting the minimal requirements for admission does not guarantee admission nor does the failure to meet a requirement result in an automatic rejection. The GRE is not required for admission to the Combined BS and M.A. program by UD

undergraduates.

#### B. Maintaining Status within the Program

Upon admission into the program and prior to the start of the junior year of study, the student will meet with his graduate advisor and submit a planned program of study, including all elective courses, to the Graduate Studies Committee. Planned programs of study are due by the end of fall semester of the student's junior year.

Continuation in the Combined BS and M.A. program is contingent upon maintaining a cumulative GPA of at least 3.25 in undergraduate courses with CGSC and LING designations and in graduate coursework. Satisfactory progress includes following the prescribed program of study.

Each student's progress and GPA will be evaluated at the end of each academic year by the student's advisor and the Graduate Studies Committee. Students who fail to meet the minimum GPA requirements or fail to show progress toward the degree will be dropped from the Combined BS and M.A. program. They may, however, continue in the undergraduate major unless their undergraduate progress is unsatisfactory according to the rules in effect for the BS program.

#### C. Degree Requirements for the Master of Arts in Linguistics and Cognitive

Science and the BS in Cognitive Science  
The graduate level course requirements for students in the Combined BS and M.A. option are the same as those for the M.A. in Linguistics and Cognitive Science. The course requirements for the degree include 30 credit hours planned in consultation with the student's advisor and the Director of Graduate Studies, which must include at least 21 credit hours in the Linguistics Department and at least one 800-level seminar. The M.A. in Linguistics and Cognitive Science is a flexible program of study that provides training in both Linguistics and Cognitive Science. Separate tracks are provided for students whose emphasis is clearly in Cognitive Science or in Linguistics. In addition, students may propose a program of study that combines elements of the Linguistics and Cognitive Science tracks. See the Department's Graduate Policy Statement for additional information. Students in the Combined BS and M.A. option must fulfill all graduate and undergraduate course requirements for both the M.A. and their undergraduate degree.

#### D. Course Overlap

In the event that a student in the Combined BS and M.A. option completes a required graduate course as an undergraduate, and elects to count that course toward the bachelors degree, he will be required to substitute another graduate course, the choice requiring approval of the Director of Graduate Studies. When a student completes a 400-level undergraduate course that has content very similar to that of a parallel 600-level graduate course, he must petition the Director of Graduate Studies to substitute another graduate course for the 600-level course in question.

#### E. Revisions to Planned Program of Study in Combined BS and M.A. Option -

Students who wish to make changes to their program of study must first obtain permission from their advisor. The advisor must then make a written request to the Graduate Studies Committee to revise the program of study.

#### MINOR IN LINGUISTICS

The minor in linguistics requires 18 credits, distributed as follows:

LING 101 Introduction to Linguistics 3

One of the following: 3

LING 403 Introduction to Phonology

LING 404 Structure of Language

LING 418 Meaning and Language Use

Any four additional LING courses, two of which must be at the 300-level or above 12

Special problems courses and courses other than those specified above must have approval of the Undergraduate Studies Committee of the Department of Linguistics.

#### MINOR IN COGNITIVE SCIENCE

Cognitive Science studies the computational and representational structure of the mind by combining linguistics, philosophy, anthropology, computer science (especially artificial intelligence), and psychology. Courses for the minor in cognitive science focus on three areas: (1) broad foundational issues in linguistics, psychology, and computing; (2) more specialized issues in mental representation, computation, theoretical linguistics, and epistemology; (3) problems in cognition, data processing, language and formal representation that are related to students' particular interests.

The minor requires 18 credits, distributed as follows (most of these courses have prerequisites, as listed):

A. All of the following: 9

CGSC 170 Introduction to Cognitive Science  
LING 101 Introduction to Linguistics  
PSYC 100 General Psychology

B. One of the following: 3

CISC 108 Introduction to Computer Science I  
CISC 106 General Computer Science for Engineers  
CISC 181 Introduction to Computer Science (restriction: programming experience) (coreq: MATH 115, MATH 117, MATH 221 or MATH 241)

C. One of the following: 3

LING 404 Structure of Language  
LING 418 Meaning and Language Use (prereq: LING 101)  
CGSC 340 Cognition (prereqs: PSYC207 and PSYC 209)  
PHIL 205 Logic  
ANTH 205 Anthropology and Human Nature

D. One of the following: 3

PSYC 310 Sensation & Perception (prereqs: PSYC207 and PSYC 209)  
CGSC 314 Brain & Behavior  
CISC 220 Data Structures (prereq: CISC 181)  
CGSC 681 Artificial Intelligence (prereq: CISC 220 & CISC 310)  
EDUC 462 Language Acquisition  
LING 609 Syntax I  
PHIL 330 Philosophy of the Mind  
ANTH 300 Primatology  
or  
any of the courses not chosen under C

No more than 3 courses may be from a single department.

Pre-Professional Speech Pathology And Cognitive And Linguistic Science

Students who wish to prepare for graduate or professional work in Speech Pathology and Communication Disorders should major in Cognitive Science. Suggested minors include Psychology, Disability Studies, and/or Linguistics. This allows them to follow a course of study drawing on linguistics, speech science, psychology, neuroscience, and biology. This

will include courses in acoustics, physiology, psycholinguistics, normal and abnormal development, and a variety of other scientific and clinical fields. A model concentration for students interested in Pre-Professional Speech Pathology is provided at (<http://www.ling.udel.edu/ling>).

### Material Culture Studies

Telephone: (302) 831-8788  
[www.udel.edu/materialculture](http://www.udel.edu/materialculture)  
Faculty Listing: <http://materialculture.udel.edu/faculty/faculty.html>

The Center for Material Culture Studies offers an interdisciplinary undergraduate minor that engages students in understanding the diversity of cultures through the things and places people create. Courses in the minor help students gain new perspective on objects and sites, from the intimate environments of the home to the historical development of regional landscapes. The minor draws on the University's rich on-campus resources in material culture studies, including the University Museums, the Paul R. Jones Collection, the Center for Historic Architecture and Design, and the Museum Studies Program, and its long-standing affiliations with such outstanding cultural institutions in the region as the Winterthur Museum and Country Estate and the Hagley Museum and Library. Students in the minor are encouraged, but not required, to complete an internship that would enhance their exposure to behind-the-scenes work in cultural institutions such as museums, historical societies, and historic preservation agencies.

### MINOR IN MATERIAL CULTURE STUDIES

The minor in Material Culture Studies requires 18 credit hours distributed as follows: Three core courses and an additional three courses must be selected in consultation with and approved by the student's minor advisor. These courses should represent major topic areas in material culture studies. All three additional courses must be selected from outside the requirements of the student's major and outside his or her other minors. All courses included within the minor must be completed with a grade of C- or above.

## Core Courses Credits

ANTH 216/MCST 216/  
HIST 216 Introduction to Material Culture  
Studies 3  
MCST 402 Research and Writing Seminar 3  
(prerequisite: MCST 216)  
MCST Internship or independent study 3  
Area Courses 9  
An additional three courses (9 credits) to be  
chosen in consultation with the student's minor  
advisor from recommended offerings in Material  
Culture Studies. Two of these courses must be  
at the 200-level or above. The third course must  
be at the 300-level or above. Courses must  
be selected from outside the student's major  
and represent at least two different programs/  
departments.

## Mathematical Sciences

Telephone: (302) 831-2653  
<http://www.math.udel.edu/>  
Faculty Listing: [http://www.math.udel.edu/  
people/people.html](http://www.math.udel.edu/people/people.html)

The Department of Mathematical Sciences  
administers major programs in Mathematical  
Sciences leading to the Bachelor of Arts or  
the Bachelor of Science, as well as BA and BS  
major programs in Mathematics Education for  
those students preparing for careers teaching  
secondary school mathematics. A minor in  
mathematics is also available. The Department  
also participates in a BS degree program in  
Mathematics and Economics and a BS degree in  
Quantitative Biology.

The Department of Mathematical Sciences also  
provides courses for others who need to use  
mathematics and statistics in their careers, be it  
engineering, science, medicine, or management.

Since mathematics is a highly structured  
discipline, careful attention must be paid to  
prerequisites. A successful mathematical  
sciences major must complete several courses  
in the major each year to graduate within a  
reasonable time frame. The Department of  
Mathematical Sciences carefully monitors  
student progress and will drop from the major  
any student not making satisfactory progress in  
the program. A normally matriculated student  
majoring in the Department of Mathematical  
Sciences is not making satisfactory progress if he

or she has not successfully completed a required  
Mathematical Science course by the beginning  
of the third semester or has failed to successfully  
complete any required Mathematical Science  
course for two consecutive semesters.  
Consistent with the program requirements,  
"successfully complete" means to earn a grade  
of C- or better. A student not making satisfactory  
progress may petition the department to  
remain as a major when there are extenuating  
circumstances.

Departmental requirements and course  
descriptions are subject to continual revision.  
Up-to-date statements of requirements, course  
descriptions, and departmental policies are  
available at the departmental office or its  
website.

## Courses For Other Majors

The three-semester calculus sequence MATH  
241, MATH 242, MATH 243 is the traditional  
basis for programs in the physical sciences and  
engineering. Students with a sound preparation  
in calculus are encouraged to enroll in MATH 242  
to avoid repetition of known material. Students  
with advanced placement are automatically  
placed in MATH 242, and others should follow  
the advice given during new student orientation.

The calculus sequence MATH 221, MATH 222  
and finite mathematics course MATH 230  
are designed for students in the biological,  
behavioral, management, and social sciences.  
Trigonometry is not a prerequisite for these  
courses. Requirements in mathematics  
preparation for these programs vary greatly;  
thus students with preparation in trigonometry, a  
high aptitude for mathematics, or an expectation  
of pursuing more quantitative aspects might  
seriously consider taking MATH 241, MATH 242  
as an alternative to MATH 221, MATH 222.

The sequence MATH 251, MATH 252, MATH 253  
is designed for prospective elementary school  
teachers and is restricted to declared majors  
in the appropriate programs of the College of  
Human Services, Education and Public Policy.

Students who need further preparation in  
algebra and trigonometry prior to a 200-level  
course should take MATH 115 or MATH 117.  
MATH 113 and MATH 114 serve to establish  
minimal skill levels for students not expecting to  
continue at the 200-level. MATH 113 may not be  
appropriate for some majors. Students should

check with their department advisor for the correct mathematics requirement.

Ordinarily, credit is not given for 100-level courses that follow successful completion of 200-level courses. Credit for corresponding courses from different tracks will be given only upon approval of the chair: e.g.,

- MATH 114 and MATH 115
- MATH 210 and MATH 230
- MATH 221 and MATH 241
- MATH 222 and MATH 242
- MATH 302, MATH 341, and MATH 351
- MATH 342, MATH 349, and MATH 352

### MATHEMATICAL SCIENCES (BA)

#### CURRICULUM CREDITS

University and College requirements.

#### MAJOR REQUIREMENTS

A grade of C- or better is required for major courses and related work. Students lacking preparation for MATH 242 should begin with MATH 241.

MATH 210	Discrete Mathematics I	3
MATH 242	Analytic Geometry and Calculus B	4
MATH 243	Analytic Geometry and Calculus C	4
MATH 245	An Introduction to Proof	3
MATH 268	Perspectives on Mathematics	1
MATH 302	Ordinary Differential Equations	3
MATH 349	Elementary Linear Algebra	3
MATH 350	Probability Theory and Simulation Methods	3

Nine credits of mathematics at the 300 level or above. MATH 308, MATH 379, MATH 380, and MATH 382 are not applicable 9

ENGL 312 Written Communications in Business 3

(or other approved second writing course, including MATH 308 or MATH 512)

CISC 181 Introduction to Computer Science II 3

and

CISC 220 Data Structures 3

(Students with no previous experience in a programming language should start with CISC106 or CISC 108.)

Any substitution must be approved by the department Undergraduate Studies Committee.

### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credits requirement for the degree, with at least 79 credits outside Mathematics.

CREDITS TO TOTAL A MINIMUM OF 124

### HONORS- MATHEMATICS (BA)

The recipient must complete:

1. All requirements for the Bachelor of Arts degree in Mathematics.

2. All of the University's generic requirements for the Honors Baccalaureate degree. All Mathematics courses below the 600-level in which the student takes an Honors component may be counted toward the minimum 12 hours of Honors credits in the major required for the Honors degree. All Mathematics courses at the 600-level or higher may be counted toward the same 12 credit Honors course requirement.

### MATHEMATICAL SCIENCES (BS)

#### CURRICULUM CREDITS

#### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing 3 (minimum grade C-)

First Year Experience (FYE) 0-4

University Breadth Requirement 12

Discovery Learning Experience (DLE) 3

Multi-cultural Courses 3

#### COLLEGE REQUIREMENTS

Writing: (minimum grade C-) 3

A second writing course involving significant writing experience including two papers with a combined minimum of 3,000 words to be submitted for extended faculty critique of both composition and content. This course must be taken after completion of 60 credit hours, and chosen from one of the following:

ENGL 312 Written Communications in Business 3

or

ENGL 410 Technical Writing

or

MATH 308

or

MATH 512

Foreign Language: 0-12  
 Completion of the intermediate-level course (107 or 112) in a given language. Number of credits needed and initial placement will depend on number of years of high school study of foreign language. Students with four or more years of high school work in a single foreign language may attempt to fulfill the requirement in that language by taking an exemption examination.

College of Arts and Sciences Breadth Requirements: (minimum grade C-)  
 The College Breadth Requirements are in addition to the University Breadth Requirement. Up to 3 credits from each of the University Breadth Requirement categories may be used to simultaneously satisfy these College of Arts and Sciences Breadth Requirements

A total of eighteen credits from Groups A, B and C is required with a minimum of six credits in each group. The six credits from each group could be from the same area.

- Group A: Creative Arts and Humanities 6
- Group B: History and Cultural Change 6
- Group C: Social and Behavioral Sciences 6

**MAJOR REQUIREMENTS**

A grade of C- or better is required for major courses and related work. Students lacking adequate preparation for MATH 242 should begin with MATH 241.

**Part A**

MATH 210	Discrete Mathematics I	3
MATH 242	Analytic Geometry and Calculus B	4
MATH 243	Analytic Geometry and Calculus C	4
MATH 245	An Introduction to Proof	3
MATH 268	Perspectives on Mathematics	1
MATH 302	Ordinary Differential Equations	3
MATH 349	Elementary Linear Algebra	3
MATH 350	Probability Theory and Simulation Methods	3
MATH 512	Contemporary Applications of Mathematics	3

**Part B**

Choose three out of the following six courses 9

MATH 315	Discrete Mathematics II
MATH 401	Introduction to Real Analysis
MATH 426	Numerical Analysis and Algorithmic Computation
MATH 450	Mathematical Statistics
MATH 451	Abstract Algebra I

MATH 535 Introduction to Partial Differential Equations

**Part C**

Fifteen additional credits in mathematics or in related disciplines at the 300 level or above 15  
 At least six of these additional credits have to be from Mathematical Sciences. MATH 308, MATH 379, MATH 380, and MATH 382 are not applicable. A maximum of nine credits in this Part C may be chosen from an approved list of courses in Computer Science, Economics, Physics or Statistics. The approved list of courses will be determined by the department Undergraduate Studies Committee and will be posted on the department website.

Two-semester sequence of laboratory science 8  
 (Courses designed for non-majors in a discipline are not appropriate.)

CISC 181	Introduction to Computer Science II	3
and		
CISC 220	Data Structures	3

(Students with no previous experience in a programming language should start with CISC 106 or CISC 108)

Any substitution must be approved by the department Undergraduate Studies Committee.

**ELECTIVES**

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

**HONORS- MATHEMATICS (BS)**

The recipient must complete:

1. All requirements for the Bachelor of Science degree in Mathematics.
2. All of the University's generic requirements for the Honors Baccalaureate degree .

All Mathematics courses below the 600-level in which the student takes an Honors component may be counted toward the minimum 12 hours of Honors credits in the major required for the Honors degree. All Mathematics courses at the 600-level or higher may be counted toward the same 12 credit Honors course requirement.

## MATHEMATICS EDUCATION (BA)

### CURRICULUM CREDITS

#### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing 3  
(minimum grade C-)  
First Year Experience (FYE) 0-4  
Discovery Learning Experience (DLE) 3  
Multi-cultural Courses 3

#### COLLEGE REQUIREMENTS

Writing: (minimum grade C-) 3 A second writing course involving significant writing experience including two papers with a combined minimum of 3,000 words to be submitted for extended faculty critique of both composition and content. This course must be taken after completion of 60 credit hours.

Foreign Language: 0-12  
Completion of the intermediate-level course (107 or 112) in a given language. Number of credits needed and initial placement will depend on number of years of high school study of foreign language. Students with four or more years of high school work in a single foreign language may attempt to fulfill the requirement by taking an exemption examination.

#### BREADTH REQUIREMENTS

Group A 9  
Group B 9  
Group C 9  
Group D 10

#### MAJOR REQUIREMENTS

A grade of C- or better is required for major courses and EDUC courses and related work. Students lacking preparation for MATH 242 should begin with MATH 241.

MATH 210 Discrete Mathematics I 3  
MATH 242 Analytic Geometry and Calculus B 4  
MATH 243 Analytic Geometry and Calculus C /span>4  
MATH 245 An Introduction to Proof 3  
MATH 308 Historical Development of Mathematical Concepts and Ideas 3  
MATH 349 Elementary Linear Algebra 3  
MATH 350 Probability Theory and Simulation Methods 3  
MATH 450 Mathematical Statistics 3  
MATH 451 Abstract Algebra I 3  
MATH 518 Mathematical Models and Applications 3

or  
another Modeling course  
MATH 540 Geometry 3

One of the following Mathematics Courses 3  
MATH 302 Ordinary Differential Equations  
MATH 315 Discrete Mathematics II  
MATH 401 Introduction to Real Analysis  
MATH 508 Introduction to Complex Variables  
One of the following Computer Science Courses3  
CISC 108 Introduction to Computer Science I (for those with no previous experience)

or  
CISC 181 Introduction to Computer Science II

PHYS 207 Introductory Physics I 4  
MATH 279 Problem Solving Strategies I 1  
MATH 379 Problem Solving Strategies 1  
MATH 380 Approaches to Teaching Mathematics 3  
MATH 382 Student Teaching Seminar: Secondary Math 2  
EDUC 400 Student Teaching /span>9  
EDUC 413 Adolescent Development and Educational Psychology 4  
EDUC 414 Teaching Exceptional Adolescents 3  
EDUC 419 Diversity in Secondary Education 3  
EDUC 420 Reading in the Content Areas 1

To be eligible to student teach, Mathematics Education students must have a GPA of 2.5 in their mathematics major and an overall GPA of 2.5. They must also pass a teacher competency test as established by the University Council on Teacher Education. Remaining in the program is subject to periodic review of satisfactory progress and, to be admitted to EDUC 400 Student Teaching, students must have completed all the mathematics courses required in the secondary mathematics education program. Students should consult the teacher education program coordinator to obtain the student teaching application and other information concerning student teaching policies.

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree, with 79 credits outside of Mathematics.

CREDITS TO TOTAL A MINIMUM OF 124

## HONORS -MATHEMATICS EDUCATION (BA)

The recipient must complete:

1. All requirements for the Bachelor of Arts degree in Mathematics Education.
2. All of the University's generic requirements for the Honors Baccalaureate degree .

All Mathematics courses below the 600-level in which the student takes an Honors component may be counted toward the minimum 12 hours of Honors credits in the major required for the Honors degree. All Mathematics courses at the 600-level or higher may be counted toward the same 12 credit Honors course requirement.

## MATHEMATICS EDUCATION (BS)

### CURRICULUM CREDITS

#### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing 3  
(minimum grade C-)  
First Year Experience (FYE) 0-4  
University Breadth Requirement 12  
Discovery Learning Experience (DLE) 3  
Multi-cultural Courses 3

#### COLLEGE REQUIREMENTS

Writing: (minimum grade C-) 3  
Second writing course taken after completion of 60 credits

Foreign Language 0-12  
Completion of the intermediate-level course (107 or 112) in a given language. Number of credits needed and initial placement will depend on number of years of high school study of foreign language. Students with four or more years of high school work in a single foreign language may attempt to fulfill this requirement in that language by taking an exemption examination.

College of Arts and Sciences Breadth Requirements: (minimum grade C-)  
The College Breadth Requirements are in addition to the University Breadth Requirement. Up to 3 credits from each of the University Breadth Requirement categories may be used to simultaneously satisfy these College of Arts and Sciences Breadth Requirements.

Eighteen credits from Groups A, B and C with a minimum of six credits from each group 18

Group A: Creative Arts and Humanities 6

Group B: History and Cultural Change 6  
Group C: Social and Behavioral Sciences 6

### MAJOR REQUIREMENTS

A grade of C- or better is required for major courses and related work.

#### Mathematics Section

MATH 210 Discrete Mathematics I 3  
MATH 242 Analytic Geometry and Calculus B 4  
MATH 243 Analytic Geometry and Calculus C 4  
MATH 245 An Introduction to Proof 3  
MATH 302 Ordinary Differential Equations 3  
MATH 308 Historical Developments of Mathematical Concepts and Ideas 3  
MATH 349 Elementary Linear Algebra 3  
MATH 350 Probability Theory and Simulation Methods 3  
MATH 450 Mathematical Statistics 3  
MATH 451 Abstract Algebra 3  
MATH 540 College Geometry: A Historical Approach 3  
One of the following modeling classes 3  
MATH 512 Contemporary Applications of Mathematics  
MATH 518 Mathematical Models and Applications  
One course from the following list 3  
MATH 315 Discrete Mathematics II  
MATH 401 Introduction to Real Analysis  
MATH 503 Advanced Calculus for \ Applications  
MATH 508 Introduction to Complex Variables and Applications

#### COMPUTER AND INFORMATION SCIENCES

Either CISC 106 or CISC 108 (for those with no previous equivalent experience)  
or  
CISC 181 3

#### SCIENCE

A two-semester, 8 credit sequence of laboratory science (courses designed for non-majors in a discipline are not appropriate, except for CHEM 103/CHEM 104) 8

#### PROFESSIONAL DEVELOPMENT

MATH 279 Problem Solving Strategies 1  
MATH 379 Problem Solving Strategies 1  
MATH 380 Approaches to Teaching Mathematics 3  
MATH 382 Student Teaching Seminar in

Secondary Math	2
EDUC 400 Student Teaching	9
EDUC 413 Adolescent Development and Educational Psychology	4
EDUC 414 Teaching Exceptional Adolescents	3
EDUC 419 Diversity in Secondary Education	3
EDUC 420 Reading in the Content Areas	1

Nine additional credits in mathematics or in related disciplines at the 300 level or above 9

Courses not approved for math majors cannot be counted towards these 9 additional credits. Non mathematics courses can be in CISC, ECON, PHYS and STAT from an approved list maintained by the Department of Mathematical Sciences.

CREDITS TO TOTAL A MINIMUM OF 124

### HONORS- MATHEMATICS EDUCATION (BS)

The recipient must complete:

All requirements for the Bachelor of Science degree in Mathematics Education  
All of the University's generic requirements for the Honors Baccalaureate degree

All Mathematics courses below the 600-level in which the student takes an Honors component may be counted toward the minimum 12 hours of Honors credits in the major required for the Honors degree. All Mathematics courses at the 600-level or higher may be counted toward the same 12 credit Honors course requirement.

### QUANTITATIVE BIOLOGY (BS)

The College of Arts and Sciences administers an interdisciplinary major program in Quantitative Biology leading to the Bachelor of Science degree. The major provides a strong background in mathematics, biology, chemistry and physics appropriate for students who wish to pursue a career or graduate studies in biomedical and life sciences.

#### CURRICULUM CREDITS

#### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing 3  
(minimum grade C-)

First Year Experience (FYE) 0-4  
University Breadth Requirement 3  
Discovery Learning Experience (DLE) 3  
Multi-cultural Courses 3

#### COLLEGE REQUIREMENTS

Writing (minimum grade C-) 3

Second writing course taken after completion of 60 credit hours

College of Arts and Sciences Breadth Requirements: (minimum grade C-)  
The College Breadth Requirements are in addition to the University Breadth Requirement. Up to 3 credits from each of the University Breadth Requirement categories may be used to simultaneously satisfy these College of Arts and Sciences Breadth Requirements.

Eighteen credits from Groups A, B and C with a minimum of six credits from each group. One of the courses should be in the area of Bioethics.  
Group A - Creative Arts and Humanities 6  
Group B - History and Cultural Change 6  
Group C - Social and Behavioral Sciences 6

#### MAJOR REQUIREMENTS

A grade of C- or better is required for major courses and related work.

#### Biology

BISC 207 Introduction to Biology I 4  
BISC 208 Introduction to Biology II 4  
Three of the following three-credit courses 9  
BISC 302 General Ecology  
BISC 305 Cell Physiology  
BISC 306 General Physiology  
BISC 401 Molecular Biology of the Cell  
BISC 403 Genetic and Evolutionary Biology

One of the following two-credit laboratory classes 2

BISC 312 General Ecology Laboratory  
BISC 315 Experimental Cell Biology  
BISC 316 Experimental Physiology  
BISC 411 Experimental Molecular Biology  
BISC 413 Advanced Genetics Laboratory

Either CISC 106 or CISC 108 (for those with no previous equivalent experience)  
or CISC 181 3

#### Chemistry

One of the following options (A, B or C) 8-12  
Option A  
CHEM 103 General Chemistry 4

CHEM 104 General Chemistry 4  
Option B  
CHEM 111 General Chemistry 3  
CHEM 112 General Chemistry 3  
CHEM 119 Quantitative Chemistry I 3  
CHEM 120 Quantitative Chemistry II 3  
Option C  
CHEM 111 General Chemistry 3  
CHEM 112 General Chemistry 3  
CHEM 220 Quantitative Analysis 3  
CHEM 221 Quantitative Laboratory 1  
CHEM 321 Organic Chemistry 4  
CHEM 322 Organic Chemistry 4  
CHEM 527 Introductory Biochemistry 3

#### Mathematics

MATH 210 Discrete Mathematics I 3  
MATH 241 Analytic Geometry and Calculus A 4  
MATH 242 Analytic Geometry and Calculus B 4  
MATH 243 Analytic Geometry and Calculus C 4  
MATH 302 Ordinary Differential Equations 3  
MATH 349 Elementary Linear Algebra 3  
MATH 350 Probability Theory and Simulation  
Methods 3  
MATH 426 Introduction to Numerical Analysis  
and Algorithmic Computation 3  
MATH 450 Mathematical Statistics 3  
MATH 460 Introduction to Systems Biology 3  
MATH 535 Introduction to Partial Differential  
Equations 3

#### Physics

PHYS 207 Fundamentals of Physics I 4  
PHYS 208 Fundamentals of Physics II 4

#### OTHER REQUIREMENTS

Two one-credit integrative seminars 2  
MATH 260 Integrative Seminar

Three integrative or technical electives, 6  
credits of which should be integrative electives  
from a list maintained by the Department of  
Mathematical Sciences.

In addition, undergraduate research is strongly  
recommended. 9

CREDITS TO TOTAL A MINIMUM OF 124

#### HONORS- QUANTITATIVE BIOLOGY (BS)

The recipient must complete:

1. All requirements for the Bachelor of Science degree in Quantitative Biology.
2. All of the University's generic requirements

for the Honors Baccalaureate degree:

Of the minimum 12 Honors credits required in the major department or in courses in collateral disciplines specifically required for the major, at least three credits have to be taken from the Department of Biological Sciences and at least three from the Department of Mathematical Sciences.

All Mathematics and Biology courses below the 600-level in which the student takes an Honors component may be counted toward the minimum 12 Honors credits in the major required for the Honors degree. All Mathematics and Biology courses at the 600-level or higher may be counted toward the minimum 12 honors of Honors credits in the major or collateral discipline required for the Honors degree.

#### MINOR IN MATHEMATICS

A student seeking a minor in mathematics must obtain permission from the chairperson or his designee in the Department of Mathematical Sciences.

Course requirements consist of a total of 18 credits in MATH courses offered by the Department of Mathematical Sciences, to include 9 credits above MATH 302. In order to count toward the minor, a grade of C- or better is required. MATH 305,

MATH 341 and MATH 351 are not considered above MATH 302 since they are comparable courses from a different track. However, MATH 342 or MATH 352 may be counted as above MATH 302, provided MATH 349 is not included in the count.

Courses which are cross-listed with a Mathematical Sciences MATH course may also be counted toward the minor. Courses in mathematics education (e.g., MATH 379, MATH 380, MATH 382) may not be counted toward the minor.

#### MATHEMATICS AND ECONOMICS

The College of Arts and Sciences administers an interdisciplinary major program in Mathematics and Economics leading to the Bachelor of Science degree. The major, with courses taught by faculty in the Departments of Economics and

of Mathematical Sciences, provides a strong background in mathematics for students in economics. Students graduating with this degree will be well prepared for graduate studies in economics or in mathematics.

### MATHEMATICS AND ECONOMICS (BS)

#### CURRICULUM CREDITS

#### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing 3  
(minimum grade C-)

First Year Experience (FYE) 0-4

University Breadth Requirement 12

Discovery Learning Experience (DLE) 3

Multi-cultural Courses 3

#### COLLEGE REQUIREMENTS

Writing: (minimum grade C-) 3

A second writing course involving significant writing experience including two papers with a combined minimum of 3,000 words to be submitted for extended faculty critique of both composition and content. This course must be taken after completion of 60 credit hours.

ENGL 312 Written Communications in Business 3

(or other approved second writing course including MATH 308 or MATH 512)

College of Arts and Sciences Breadth Requirements: (minimum grade C-)  
The College Breadth Requirements are in addition to the University Breadth Requirement. Up to 3 credits from each of the University Breadth Requirement categories may be used to simultaneously satisfy these College of Arts and Sciences Breadth Requirements.

A total of eighteen credits from Groups A, B and C is required with six credits from each group. The six credits from each group could be from the same area. 18

Group A: Creative Arts and Humanities 6

Group B: History and Cultural Change 6

Group C: Social and Behavioral Sciences 6

#### MAJOR REQUIREMENTS

A grade of C- or better is required for major courses and related work. Students lacking adequate preparation for MATH 242 should begin with MATH 241. Students must take a minimum of 39 credits in Mathematics and Economics at the 300-level or above. MATH 308, MATH 379, MATH 380 and MATH 382 are not applicable.

#### Mathematics Section

MATH 242 Analytic Geometry and Calculus B 4

MATH 243 Analytic Geometry and Calculus C 4

MATH 268 Perspectives on Mathematics 1

MATH 302 Ordinary Differential Equations 3

MATH 349 Elementary Linear Algebra 3

MATH 529 Fundamentals of Optimization

MATH 530 Applications of Mathematics in Economics 3

One of the following 3

MATH 210 Discrete Mathematics I

or

MATH 230 Finite Mathematics with Applications

One of the following options (A or B, 6 credits total)

Option A

MATH 350 Probability Theory and Simulation Methods 3

and

MATH 450 Mathematical Statistics 3

Option B

MATH 201 Introduction to Statistical Methods I 3

and

MATH 202 Introduction to Statistical Methods II 3

One of the following options (C or D, 6 credits total)

Option C

MATH 245 An Introduction to Proof 3

and

MATH 401 Introduction to Real Analysis 3

Option D

One of the following three courses 3

MATH 426 Numerical Analysis and Algorithmic Computations

MATH 503 Advanced Calculus for Applications 3

MATH 512 Contemporary Application of Mathematics and Modeling

Students intending to pursue a graduate education in financial mathematics should select at least MATH 210, Options A and C. Students intending to go into actuarial sciences should select Option A.

## Economics Section

ECON 301	Quantitative Microeconomic Theory	3
(prerequisites: ECON 151 and MATH 241)		
ECON 303	Intermediate Macroeconomic Theory	3
(prerequisites: ECON 152 and one of ECON 251, ECON 300 or ECON 301; or permission of instructor.		
ECON 422	Econometric Methods and Models I	3
ECON 423	Econometric Methods and Models II	3

One of the following 3

ECON 406	Markets: Information and Uncertainty	
ECON 426	Mathematical Economic Analysis	

One of the following 3

ECON 302	Banking and Monetary Policy	
ECON 430	Advanced Macroeconomic Theory	
ECON 443	International Monetary Economics	
ECON 471	Futures and Options Markets	
FINC 311	Principles of Finance	
One of the following Computer Science courses <sup>3</sup>		
CISC 108	Introduction to Computer Science I	
or		
CISC 181	Introduction to Computer Science II	

Any substitutions must be approved by the department Undergraduate Studies Committee.

## ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

## HONORS-MATHEMATICS AND ECONOMICS (BS)

The recipient must complete:

1. All requirements for the Bachelor of Science degree in Mathematics and Economics.
2. All of the University's generic requirements for the Honors Baccalaureate degree .

Of the minimal 12 Honors credits required in the major department or in courses in collateral

disciplines specifically required for the major, at least three credits have to be taken from the Department of Economics and at least three from the Department of Mathematical Sciences.

All Mathematics and Economics courses below the 600-level in which the student takes an Honors component may be counted toward the minimum 12 Honors credits in the major required for the Honors degree. All Mathematics and Economics courses at the 600-level or higher may be counted toward the minimum 12 honors of Honors credits in the major or collateral discipline required for the Honors degree.

## Quantitative Biology (BS)

The College of Arts and Sciences administers an interdisciplinary major program in Quantitative Biology leading to the Bachelor of Science degree. The major provides a strong background in mathematics, biology, chemistry and physics appropriate for students who wish to pursue a career or graduate studies in biomedical and life sciences.

## CURRICULUM CREDITS

### UNIVERSITY REQUIREMENTS

ENGL 110	Critical Reading and Writing	3
(minimum grade C-)		
First Year Experience (FYE)		0-4
University Breadth Requirement		
Up to 3 credits from each of the University Breadth Requirement categories may be used to simultaneously satisfy the College of Arts and Sciences Breadth Requirements.		
Discovery Learning Experience (DLE)		3
Multi-cultural Courses		3

### COLLEGE REQUIREMENTS

Writing (minimum grade C-)		3
Second writing course taken after completion of 60 credit hours		

### BREADTH REQUIREMENTS

Eighteen credits from Groups A, B and C with a minimum of six credits from each group. One of the courses should be in the area of Bioethics		
Group A		6
Group B		6
Group C		6

### MAJOR REQUIREMENTS

A grade of C- or better is required for major courses and related work.  
Biology

BISC 207	Introduction to Biology I	4
BISC 208	Introduction to Biology II	4
Three of the following three-credit courses		9
BISC 302	General Ecology	
BISC 305	Cell Physiology	
BISC 306	General Physiology	
BISC 401	Molecular Biology of the Cell	
BISC 403	Genetic and Evolutionary Biology	
One of the following two-credit laboratory classes		2
BISC 312	General Ecology Laboratory	
BISC 315	Experimental Cell Biology	
BISC 316	Experimental Physiology	
BISC 411	Experimental Molecular Biology	
BISC 413	Advanced Genetics Laboratory	

Either CISC 106 or CISC 108 (for those with no previous equivalent experience), or CISC 181 3

#### Chemistry

One of the following options (A, B or C) 8-12

##### Option A

CHEM 103	General Chemistry	4
CHEM 104	General Chemistry	4

##### Option B

CHEM 111	General Chemistry	3
CHEM 112	General Chemistry	3
CHEM 119	Quantitative Chemistry I	3
CHEM 120	Quantitative Chemistry II	3

##### Option C

CHEM 111	General Chemistry	3
CHEM 112	General Chemistry	3
CHEM 220	Quantitative Analysis	3
CHEM 221	Quantitative Laboratory	1
CHEM 321	Organic Chemistry	4
CHEM 322	Organic Chemistry	4
CHEM 527	Introductory Biochemistry	3

#### Mathematics

MATH 210	Discrete Mathematics I	3
MATH 241	Analytic Geometry and Calculus A	4
MATH 242	Analytic Geometry and Calculus B	4
MATH 243	Analytic Geometry and Calculus C	4
MATH 302	Ordinary Differential Equations	3
MATH 349	Elementary Linear Algebra	3
MATH 350	Probability Theory and Simulation Methods	3
MATH 426	Introduction to Numerical Analysis and Algorithmic Computation	3
MATH 450	Mathematical Statistics	3
MATH 460	Introduction to Systems Biology	3
MATH 535	Introduction to Partial Differential Equations	3

#### Physics

PHYS 207	Fundamentals of Physics I	4
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PHYS 208	Fundamentals of Physics II	4
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#### OTHER REQUIREMENTS

Two one-credit integrative seminars 2  
MATH 260 Integrative Seminar  
Three integrative or technical electives, 6 credits of which should be integrative electives from a list maintained by the Department of Mathematical Sciences. In addition, undergraduate research is strongly recommended. 9

CREDITS TO TOTAL A MINIMUM OF 124

#### Medical Humanities

Telephone: (302) 831-2359  
<http://www.udel.edu/medicalhumanities/>

The undergraduate minor in medical humanities explores how different kinds of humanistic inquiry inform and are informed by the science and practice of medicine.

#### MINOR IN MEDICAL HUMANITIES

Grounding	3-4
One 3-4 credit class	
BISC 103 or BISC 104	Principles of Biology
BISC 106	Elementary Human Physiology
BISC 276	Human Physiology
BISC 306	General Physiology
HESC 220	Anatomy and Physiology

Humanistic Approaches 12  
One three credit class from each of the following three disciplinary groups (9 credits), plus one additional class from any one of the groups (3 credits).

#### Ethics and Policy

PHIL 241	Ethical Issues in Health Care
PHIL 313	Killing and Letting Die
PHIL 444	Medical Ethics

#### Art, Literature, and History

HIST 382	History of Western Medicine
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#### Human Sciences

POSC 343/SOCI 343	Society Politics and Healthcare
SOCI 311	Sociology of Healthcare
WOMS 389	Topics: Women and Health Issues

Capstone 1 Credit Independent Study (pass/fail)  
A short (1000 word) discussion of how

humanistic studies can inform and improve the practice of healthcare, with specific reference to the content of one or more classes taken (must include specific reference to any classes substituted for a listed class). Restriction: must be in senior year or have completed 12 units of the minor to enroll.

Class substitutions: Relevant alternative classes, or 3 credit independent study, may be substituted within each group if approved by the minor's faculty advisor.

### Medieval Studies

Telephone: (302) 831-3328

The College of Arts and Sciences offers an undergraduate minor in Medieval Studies. Students interested in the Middle Ages and Medieval Studies have the opportunity to draw on the resources of a number of departments and structure individual programs of breadth and variety. Students pursuing a minor in Medieval Studies must take a minimum of 18 credits from the following courses, selected from at least three departments.

#### MINOR IN MEDIEVAL STUDIES

ARTH 209	Early Medieval Art (200-1000 AD)
ARTH 210	Later Medieval Art (1000-1400 AD)
ARTH 213	Art of the Northern Renaissance
ARTH 217	Early Renaissance Art
ARTH 220	Italian Renaissance Architecture
ARTH 236	Arts of the Islamic World
ARTH 406/ARTH 606	Seminar in Medieval Art
ARTH 413	Seminar in Italian Renaissance Art
CMLT 320	Varying Authors and Genres (on medieval topics)
CMLT 321	Medieval Literature and Culture
ENGL 321	Medieval Literature and Culture
ENGL 322	Chaucer
ENGL 323	Studies in Medieval Literature
FLLT 320	Varying Authors and Genres (on medieval topics)
FREN 423/FREN 623	French Medieval Literature
HIST 241	History of Christianity to 1300
HIST 245	Medieval Kings and Queens
HIST 342	Barbarian Europe
HIST 343	Medieval Europe 1050-1350
HIST 344	Renaissance Europe
HIST 471/HIST 671	Seminar in Medieval History
MUSC 311	Music History: 400 through 1600

PHIL 311	Early Medieval Philosophy
PHIL 312	Later Medieval Philosophy
SPAN 420	Topics: Medieval Literature
SPAN 421	Spanish Medieval Literature

Substitutions may be arranged with the permission of the faculty coordinator, provided that the required disciplinary distribution is maintained.

### Military Science - Army ROTC

Telephone: (302) 831-8213  
<http://www.udel.edu/armyrotc/>

The mission of the Military Science - Army ROTC program is to produce leaders of character to serve in the nation's defense. The cornerstone of the leadership program is developing self-confidence, teamwork, responsibility, professional ethics, and the development of all aspects of leadership.

Students at the University of Delaware can earn a commission as a Second Lieutenant in the U.S. Army upon completion of the military science program and a baccalaureate degree. The normal four-year ROTC program requires the completion of eight one-semester courses, totaling 12 credit hours, and successful completion of a five-week leadership camp during the summer prior to the senior year. Many challenging and fun training events are scheduled.

#### ROTC Program

The ROTC program consists of two major subsets - the Basic Course and the Advanced Course. Both courses are straightforward rather than conceptual and tend to be small (25 or less) with much personal interaction between the cadre and the students.

Basic Course - for freshmen and sophomores. A series of four 1-credit classes that are open to all students with no military obligation. Student instruction includes basic leadership skills, orientation to the US Army, time management and other academic skills, decision making, and adventure training opportunities (rappelling, land navigation, etc.).

Faculty and the advanced course Cadets form support groups and act as mentors to the basic course students, providing assistance and a

positive environment. Students enrolled in the basic course can compete for 2- and 3-year scholarships that will pay full tuition/fees and provide stipends.

While the Army may not be for everyone, and some of the Basic Course students decide not to continue in the Advanced program, they all unequivocally state that the ROTC Basic Course instruction provided them with excellent life skills, abilities, and confidence.

Advanced Course - for juniors, seniors and graduate students leading to a commission as a Second Lieutenant. This series of four 2-credit classes involves advanced practical leadership and military skills training as well as a 4 -credit summer training course conducted at Fort Lewis, in Washington State. Students are paid and all travel, medical needs, lodging, and meals are provided while attending the Leadership Development and Advanced Course.

No military obligation is incurred until the beginning of this phase. Once the student satisfactorily completes all ROTC requirements and graduates from the University, he/she receives a commission in the US Army (Active Duty or Reserve status).

#### Army ROTC Benefits

Four, three, and two-year scholarships are awarded to deserving ROTC students each year. Scholarships provide for total tuition costs (in- or out-of-state rates) plus a \$1,200 book allowance and a tiered stipend which starts at \$3,000 annually. All these benefits may be combined with other scholarship benefits. Typically, 70% of all UD ROTC students are on some type of scholarship incentive.

Many of the graduating Cadets elect to go on Active Duty to put their ROTC leadership training into practice. The annual salary for a new Second Lieutenant exceeds \$35,000.

For those Cadets who request and receive Reserve Forces duty, many receive better civilian jobs (increased pay and responsibility) because of the practical leadership training and experience they gained in the ROTC program.

Most UD degree programs accept all 12 military science credits toward graduation. Exceptions are those in the College of Engineering (3 credits) and in the Departments of Medical Technology

(4 credits), Nursing (6 credits), and Nutrition and Dietetics (4 credits), each of which accepts 4 credits. ROTC credits can be applied toward a leadership minor.

## Music

Telephone: (302) 831-2577  
<http://www.music.udel.edu/>  
Faculty Listing: <http://www.music.udel.edu/faculty/directory/>

### Department Overview

The mission of the Department of Music is to provide the best educational opportunities for our music majors" professional development as performers, educators, and scholars. We seek to provide optimal resources for significant musical growth through departmental ensembles, private study, and academic music courses available to the general student and others of the University community. We provide opportunities for cultural enrichment to the University community and its constituencies, as well as leadership and support to music educators and other professional musicians in the region.

### Majors & Minors

The curricula for undergraduate students majoring in music lead to the degrees Bachelor of Music and Bachelor of Art. The programs in the degree Bachelor of Music are directed to those who intend to become professional musicians. They offer opportunities to major in Music Education, Theory/Composition, or Applied Music (band or orchestral instruments, piano, classical guitar, and voice). The degree Bachelor of Arts offers the opportunity for professional study in music within a liberal arts context. The degree Bachelor of Arts with a concentration in music management studies provides additional opportunities preparing students for administrative careers within the not-for-profit and for-profit sectors of the music industry. All programs in music provide effective preparation for graduate study.

A minor in music is available in applied music, church music, musical studies, jazz studies or music management studies.

### Department Policies

Entering majors are expected to demonstrate a

high level of musical achievement and aptitude. Placement auditions and musicality tests for those students who wish to enter in the fall semester should be completed by June 1 of the preceding spring and must be completed before acceptance is granted. Acceptance to the University does not indicate acceptance as a music major. Students who transfer from accredited colleges are placed in appropriate levels of music theory, literature, and applied music according to the results of tests given at the time of transfer.

Part-time music majors must have the permission of the department chair to enroll for private study.

Credit for large ensembles, as required by various curricula, is given only for participation during the fall and spring semesters. The Department of Music requires the successful completion of a Sophomore Review before continuation as a music major. Detailed information about these and other aspects of curricular policy is published in the Department's Student Handbook, available online at [www.music.udel.edu/current/](http://www.music.udel.edu/current/).

#### Opportunities For Non-Majors

For the general University undergraduate, the department offers courses in the fundamentals of music, music literature, and class study of voice, guitar and organ. All courses in the department are available to any University student who meets course and department prerequisites. Some music courses may be taken as partial fulfillment of breadth requirements in the College of Arts and Sciences. Private study is also available to freshmen in the University Honors Program and to other non-majors, on a space-available basis, through the Music Merit Program. Auditions for these programs are held on the Monday before the first day of class of the academic year by arrangement with the department office. A variety of performing organizations are available to all University students: marching band, wind and jazz ensembles, orchestra, choral groups, the early music ensemble, opera workshop, steel band, and various chamber ensembles.

The department is a leader in the development and implementation of instructional technology. It is an accredited institutional member of the National Association of Schools of Music.

## MUSIC (BA)

### CURRICULUM CREDITS

#### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing 3  
(minimum grade C-)  
First Year Experience (FYE) 1  
Discovery Learning Experience (DLE) 3  
Multi-cultural Courses 3

#### MAJOR REQUIREMENTS

No more than 45 credits of Music courses may count toward the degree.

#### Applied Music

MUSC 100	Recital Attendance (four semesters required)	0
MUSC 153	Private Study: BA/Minor	2
MUSC 154	Private Study: BA/Minor	2
MUSC 175	Class Piano: Elementary I	1
MUSC 253	Private Study: BA/Minor	2
MUSC 254	Private Study: BA/Minor	2

#### Theory

MUSC 185/MUSC 186	Ear Training and Sight Singing I and II	4
MUSC 195/MUSC 196	Harmony I and II	6
MUSC 285/MUSC 286	Advanced Ear Training and Sight Singing I and II	4
MUSC 295/MUSC 296	Advanced Harmony I and II	6

#### Ensemble

Four Semesters	4
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Students must consult with the Department for appropriate ensemble placement. Students must be enrolled in an appropriate ensemble during all semesters in which they are enrolled in Private Study.

#### Literature

MUSC 211	Introduction to Music History	3
MUSC 311	Music History: 400-1600	3
MUSC 312	Music History: 1600-1827	3
MUSC 313	Music History: 1827 to the Present	3

#### ELECTIVES

After required courses are completed sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

Grade of C- or better required in all courses in major.

CREDITS TOTOTAL A MINIMUM OF 124

## MUSIC (MUSIC MANAGEMENT STUDIES) (BA)

### CURRICULUM CREDITS

#### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing 3  
(minimum grade C-)  
First Year Experience (FYE) 1  
University Breadth Requirement  
Up to 3 credits from each of the University  
Breadth Requirement categories may be used  
to simultaneously satisfy the College of Arts and  
Sciences Breadth Requirements. 12  
Discovery Learning Experience (DLE) 3  
Multi-cultural Courses 3

#### MAJOR REQUIREMENTS

No more than 57 credits of Music courses may  
count toward the degree.

#### Applied Music

MUSC 100 Recital Attendance (four  
semesters required) 0  
MUSC 153 Private Study: BA/Minor 2  
MUSC 154 Private Study: BA/Minor 2  
MUSC 175 Class Piano: Elementary I 1  
MUSC 253 Private Study: BA/Minor 2  
MUSC 254 Private Study: BA/Minor 2

#### Theory

MUSC 185/MUSC 186 Ear Training and Sight  
Singing I and II 4  
MUSC 195/MUSC 196 Harmony I and II 6  
MUSC 285/MUSC 286 Advanced Ear Training  
and Sight Singing I and II 4  
MUSC 295/MUSC 296 Advanced Harmony I  
and II 6

#### Ensemble

Four semesters 4  
Students must consult with the Department for  
appropriate ensemble placement.  
Students must be enrolled in an appropriate  
ensemble during all semesters in which they are  
enrolled in Private Study.

#### Literature

MUSC 211 Introduction to Music History 3  
MUSC 311 Music History: 400-1600 3  
MUSC 312 Music History: 1600-1827 3  
MUSC 313 Music History: 1825 to the  
Present 3

#### Music Management

MUSC 389 Elements of Music  
Management 3  
MUSC 309 Patterns of Patronage 3  
MUSC 464 Internship 1-3

MUSC 488 Principles of Music Industry  
Practice 3

#### ELECTIVES

After required courses are completed sufficient  
non-music elective credits must be taken to meet  
the minimum credit requirement for the degree.

Grade of C- or better required in all courses in  
major.

CREDITS TO TOTAL A MINIMUM OF 124

## APPLIED MUSIC-INSTRUMENTAL (PRINCIPAL INSTRUMENTS) (BM)

The concentration designates the student's  
principal instrument. A list of instrumental  
options can be found in the chart on page vi at  
the front of this catalog, or can be obtained from  
the Department or the University Advisement  
Center.

### CURRICULUM CREDITS

#### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing 3  
(minimum grade C-)  
First Year Experience (FYE) 1  
University Breadth Requirement  
Up to 3 credits from each of the University  
Breadth Requirement categories may be used  
to simultaneously satisfy the College of Arts and  
Sciences Breadth Requirements. 12  
Discovery Learning Experience (DLE) 3  
Multi-cultural Courses 3

#### COLLEGE REQUIREMENTS

Writing: (minimum grade C-) 3  
A second writing course involving significant  
writing experience including two papers with  
a combined minimum of 3,000 words to be  
submitted for extended faculty critique of both  
composition and content. This course must  
be taken after completion of 60 credit hours.  
Appropriate writing courses are normally  
designated in the semester's Registration  
Booklet. (See list of courses approved for second  
writing requirement.)

Mathematics: One of the following 0-4

MATH 113 Contemporary Mathematics  
(designed for students who do not intend to  
continue the study of mathematics)  
MATH 114 College Mathematics and  
Statistics

(designed for students who do not intend to continue the study of mathematics)

MATH 115 Pre-Calculus

(designed for students who intend to continue the study of mathematics)

MATH 221 Calculus I

MATH 241 Analytic Geometry and Calculus A

Successful performance on the college proficiency exam (0 credits awarded).

English literature course (200-level - Group A or B) 3

HIST 101 Western Civilization to 1648 3

HIST 102 Western Civilization: 1648 to the Present 3

Foreign Language

Completion of the intermediate-level course (106) in an ancient or modern language. The number of credits needed and initial placement will depend on the number of years of high school student of foreign language. Students with three or more years of high school work in a single foreign language, or who have gained proficiency in a foreign language by other means, may attempt to fulfill the requirement in that language by taking an exemption examination through the Foreign Languages and Literatures Department. 0-8

#### BREADTH REQUIREMENTS

Group A 6

Creative Arts and Humanities. (This requirement is satisfied by MUSC 195 and MUSC 196.)

Group B 15

History and Cultural Change. Fifteen credits representing at least two areas. (This requirement is satisfied by MUSC 311, MUSC 312, MUSC 313, HIST 101, and HIST 102.)

Group C 9

Social and Behavioral Sciences Nine credits representing at least two areas. Nine credits representing at least two areas. (MUSC 309 is recommended for partial fulfillment of this requirement.)

Group D 6

Mathematics, Natural Sciences and Technology.

#### MAJOR REQUIREMENTS

Applied Music

MUSC 100 Recital Attendance (six semesters required) 0

MUSC 151 Private Study 2

MUSC 152 Private Study 2

MUSC 251 Private Study 2

MUSC 252 Private Study 2

MUSC 357 Advanced Private Study 3

MUSC 358 Advanced Private Study 3

MUSC 457 Advanced Private Study 4

MUSC 458 Advanced Private Study 4

MUSC 175/MUSC 176 Class Piano: Elementary I and II 2

MUSC 301 Junior Recital 0

MUSC 401 Senior Recital 0

Theory

MUSC 185/MUSC 186 Ear Training and Sight Singing I and II 4

MUSC 195/MUSC 196 Harmony I and II 6

MUSC 285/MUSC 286 Advanced Ear Training and Sight Singing I and II 4

MUSC 295/MUSC 296 Advanced Harmony I and II 6

MUSC 335 Basic Conducting 2

MUSC Theory electives 4-6

Ensemble

Twelve credits selected from the following: 12  
MUSC 113 Marching Band, MUSC 114 Symphonic Band, MUSC 115 Wind Ensemble, MUSC 116 Jazz Ensemble, MUSC 117 University Orchestra, MUSC 118 Percussion Ensemble, and MUSC 321 Ensemble.

(All Ensembles may be repeated.)

Guitarists must complete the following:

MUSC 321 Ensemble: Guitar 8

Two semesters of any departmental ensemble 2

Literature

MUSC 211 Introduction to Music History 3

MUSC 311 Music History: 400-1600 3

MUSC 312 Music History: 1600-1827 3

MUSC 313 Music History: 1827 to the Present 3

MUSC 403 Chamber Music Literature 3

MUSC 405 Symphonic Literature 3

Music Electives

Excludes private study on primary instrument. 7-9  
May include two credits of ensemble.

Grade of C- or better required in all courses in major.

CREDITS TO TOTAL A MINIMUM OF 126

## APPLIED MUSIC-PIANO (BM)

### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing 3  
(minimum grade C-)  
First Year Experience (FYE) 1  
University Breadth Requirement  
Up to 3 credits from each of the University  
Breadth Requirement categories may be used  
to simultaneously satisfy the College of Arts and  
Sciences Breadth Requirements. 12  
Discovery Learning Experience (DLE) 3  
Multi-cultural Courses 3

### COLLEGE REQUIREMENTS

Writing: (minimum grade C-) 3  
A second writing course involving significant  
writing experience including two papers with  
a combined minimum of 3,000 words to be  
submitted for extended faculty critique of both  
composition and content. This course must  
be taken after completion of 60 credit hours.  
Appropriate writing courses are normally  
designated in the semester's Registration  
Booklet. (See list of courses approved for second  
writing requirement)

Mathematics: One of the following 0-4  
MATH 113 Contemporary Mathematics  
(designed for students who do not intend to  
continue the study of mathematics)  
MATH 114 College Mathematics and  
Statistics  
(designed for students who do not intend to  
continue the study of mathematics)  
MATH 115 Pre-Calculus  
(designed for students who intend to continue  
the study of mathematics)  
MATH 221 Calculus I  
MATH 241 Analytic Geometry and  
Calculus A  
Successful performance on the college  
proficiency exam (0 credits awarded).

English literature course (200-level - Group A or  
B) 3  
HIST 101 Western Civilization to 1648 3  
HIST 102 Western Civilization: 1648 to the  
Present 3

### Foreign Language

Completion of the intermediate-level course  
(106) in an ancient or modern language. The  
number of credits needed and initial placement  
will depend on the number of years of high  
school student of foreign language. Students  
with three or more years of high school work in

a single foreign language, or who have gained  
proficiency in a foreign language by other  
means, may attempt to fulfill the requirement  
in that language by taking an exemption  
examination through the Foreign Languages and  
Literatures Department. 0-8

### COLLEGE BREADTH REQUIREMENTS

Group A 6  
Creative Arts and Humanities. (This requirement  
is satisfied by MUSC 195 and MUSC 196.)

Group B 15  
History and Cultural Change. Fifteen credits  
representing at least two areas. (This  
requirement is satisfied by MUSC 311, MUSC  
312, MUSC 313, HIST 101, and HIST 102.)  
Group C 9  
Social and Behavioral Sciences. Nine credits  
representing at least two areas. (MUSC 309  
is recommended for partial fulfillment of this  
requirement.)

Group D 6  
Mathematics, Natural Sciences and Technology

### MAJOR REQUIREMENTS

Applied Music  
MUSC 100 Recital Attendance  
(six semesters required) 0  
MUSC 151 Private Study 2  
MUSC 152 Private Study 2  
MUSC 251 Private Study 2  
MUSC 252 Private Study 2  
MUSC 357 Advanced Private Study 3  
MUSC 358 Advanced Private Study 3  
MUSC 457 Advanced Private Study 4  
MUSC 458 Advanced Private Study 4  
MUSC 481 Pedagogy and Literature 3  
MUSC 155 Private Study (Harpsichord or  
Organ)  
or  
MUSC 179 Class Organ 1  
MUSC 301 Junior Recital 0  
MUSC 401 Senior Recital 0

### Theory

MUSC 185/MUSC 186 Ear Training and Sight  
Singing I and II 4  
MUSC 285/MUSC 286 Advanced Ear Training  
and Sight Singing I and II 4  
MUSC 195/MUSC 196 Harmony I and II 6  
MUSC 295/MUSC 296 Advanced Harmony I  
and II 6  
MUSC 393 Keyboard Harmony 2  
MUSC 335 Basic Conducting 2

## MUSC Theory courses 4-6

### Ensemble

Two semesters of any departmental ensemble 2

MUSC 241 Accompanying Chamber Music:  
Piano (4 semesters) 4

MUSC 441 Accompanying Chamber Music:  
Piano (2 semesters) 2

### Literature

MUSC 211 Introduction to Music History 3

MUSC 311 Music History: 400-1600 3

MUSC 312 Music History: 1600-1827 3

MUSC 313 Music History: 1825 to the  
Present 3

MUSC 363 Keyboard Literature I 3

One of the following courses:

MUSC 403 Chamber Music Literature

or

MUSC 405 Symphonic Literature 3

### Music Electives

excludes private study on primary instrument.

8

May include two credits of ensemble.

Grade of C- or better required in all courses in major.

CREDITS TO TOTAL A MINIMUM OF 127

## APPLIED MUSIC - VOICE (BM)

### CURRICULUM CREDITS

#### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing 3  
(minimum grade C-)

First Year Experience (FYE) 1

University Breadth Requirement

Up to 3 credits from each of the University  
Breadth Requirement categories may be used  
to simultaneously satisfy the College of Arts and  
Sciences Breadth Requirements. 1

Discovery Learning Experience (DLE) 3

Multi-cultural Courses 3

#### COLLEGE REQUIREMENTS

Writing: (minimum grade C-) 3

A second writing course involving significant  
writing experience including two papers with  
a combined minimum of 3,000 words to be  
submitted for extended faculty critique of both  
composition and content. This course must  
be taken after completion of 60 credit hours.

Appropriate writing courses are normally  
designated in the semester's Registration  
Booklet. (See list of courses approved for second  
writing requirement)

Mathematics: One of the following 0-4

MATH 113 Contemporary Mathematics  
(designed for students who do not intend to  
continue the study of mathematics)

MATH 114 College Mathematics and  
Statistics

(designed for students who do not intend to  
continue the study of mathematics)

MATH 115 Pre-Calculus

(designed for students who intend to continue  
the study of mathematics)

MATH 221 Calculus I

MATH 241 Analytic Geometry and  
Calculus A

Successful performance on the college  
proficiency exam (0 credits awarded).

HIST 102 Western Civilization: 1648 to the  
Present 3

Completion of the intermediate-level course (106)  
in French, German, and Italian. The number of  
credits needed and initial placement will depend  
on the number of years of high school student of  
foreign language. Students with three or more  
years of high school work in a single foreign  
language, or who have gained proficiency in a  
foreign language by other means, may attempt  
to fulfill the requirement in that language by  
taking an exemption examination through the  
Foreign Languages and Literatures Department.  
16-24

THEA 226 Acting I 3

#### COLLEGE BREADTH REQUIREMENTS

Group A 6

Creative Arts and Humanities. (This requirement  
is satisfied by MUSC 195 and MUSC 196.)

Group B 12

History and Cultural Change. Twelve credits  
representing at least two areas. (This  
requirement is satisfied by MUSC 311, MUSC  
312, MUSC 313 and HIST 102.)

Group C 6

Social and Behavioral Sciences. Six credits  
representing at least two areas. (MUSC 309  
is recommended for partial fulfillment of this  
requirement.)

Group D 3  
 Mathematics, Natural Sciences and Technology

**MAJOR REQUIREMENTS**

**Applied Music**

MUSC 100 Recital Attendance  
 (six semesters required) 0  
 MUSC 151 Private Study 2  
 MUSC 152 Private Study 2  
 MUSC 251 Private Study 2  
 MUSC 252 Private Study 2  
 MUSC 357 Advanced Private Study 3  
 MUSC 358 Advanced Private Study 3  
 MUSC 457 Advanced Private Study 4  
 MUSC 458 Advanced Private Study 4  
 MUSC 175 Class Piano: Elementary I 1  
 MUSC 176 Class Piano: Elementary II 1  
 MUSC 275 Class Piano: Intermediate I 1  
 MUSC 276 Class Piano: Intermediate II 1  
 MUSC 301 Junior Recital 0  
 MUSC 401 Senior Recital 0

**Theory**

MUSC 185/MUSC 186 Ear Training and Sight  
 Singing I and II 4  
 MUSC 285/MUSC 286 Advanced Ear Training  
 and Sight Singing I and II 4  
 MUSC 195/MUSC 196 Harmony I and II 6  
 MUSC 295/MUSC 296 Advanced Harmony I  
 and II 6  
 MUSC 335 Basic Conducting 2

Ensemble: One of the following (any 8  
 semesters) 8

MUSC 108 University Singers  
 or  
 MUSC 109 Schola Cantorum  
 or  
 MUSC 110 Chorale

**Literature**

MUSC 211 Introduction to Music History 3  
 MUSC 311 Music History: 400-1600 3  
 MUSC 312 Music History: 1600-1827 3  
 MUSC 313 Music History: 1827 to the  
 Present 3

**Related Music Studies**

MUSC 171 Diction: English and Italian 1  
 MUSC 271 Diction: German 1  
 MUSC 272 Diction: French 1  
 MUSC 480 Vocal Pedagogy 3  
 MUSC 489 Opera Workshop 1  
 Two of the following courses:  
 MUSC 426 German Lieder 2  
 MUSC 427 French Art Song 2

MUSC 428 Twentieth-Century Art Song 2

**Music Electives**

Six credits from the following: 6  
 MUSC 103 Introduction to Italian Opera  
 MUSC 104 Introduction to Opera  
 MUSC 395 Form Analysis  
 MUSC 407 Contemporary Music Literature  
 or one of the following courses not taken as a  
 Related Music Studies course:  
 MUSC 426 German Lieder  
 MUSC 427 French Art Song  
 MUSC 428 Twentieth-Century Art Song

Grade of C- or better required in all courses in  
 major.

CREDITS TO TOTAL A MINIMUM OF 131

**MUSIC EDUCATION - INSTRUMENTAL  
 (PRINCIPAL INSTRUMENT) (BM)**

The concentration designates the student's  
 principal instrument. A list of instrumental  
 options can be found in the chart on page vi  
 at the front of this catalog, or can be obtained  
 from the Department or the College of Arts and  
 Sciences Advisement Center.

**CURRICULUM CREDITS**

**UNIVERSITY REQUIREMENTS**

ENGL 110 Critical Reading and Writing 3  
 (minimum grade C-)  
 First Year Experience (FYE) 1  
 University Breadth Requirement  
 Up to 3 credits from each of the University  
 Breadth Requirement categories may be used  
 to simultaneously satisfy the College of Arts and  
 Sciences Breadth Requirements. 12  
 Discovery Learning Experience (DLE) 3  
 Multi-cultural Courses 3

**COLLEGE REQUIREMENTS**

Writing: (minimum grade C-) 3  
 A second writing course involving significant  
 writing experience including two papers with  
 a combined minimum of 3,000 words to be  
 submitted for extended faculty critique of both  
 composition and content. This course must  
 be taken after completion of 60 credit hours.  
 Appropriate writing courses are normally  
 designated in the semester's Registration  
 Booklet. (See list of courses approved for second  
 writing requirement.)

Mathematics: One of the following 0-4

MATH 113 Contemporary Mathematics  
(designed for students who do not intend to continue the study of mathematics)

MATH 114 College Mathematics and Statistics  
(designed for students who do not intend to continue the study of mathematics)

MATH 115 Pre-Calculus  
(designed for students who intend to continue the study of mathematics)

MATH 221 Calculus I

MATH 241 Analytic Geometry and Calculus A

Successful performance on the college proficiency exam (0 credits awarded).

#### COLLEGE BREADTH REQUIREMENTS

Group A 9  
Creative Arts and Humanities Nine credits representing at least two areas. (This requirement is partially satisfied by MUSC 195 and MUSC 196.)

Group B 9  
History and Cultural Change . (MUSC 311, MUSC 312, and MUSC 313 satisfy this requirement.)

Group C 9  
Social and Behavioral Sciences Nine credits representing at least two areas. (MUSC 309 is recommended for partial fulfillment of this requirement.)

Group D 4  
Mathematics, Natural Sciences and Technology One science course with an associated laboratory.

#### MAJOR REQUIREMENTS

##### Applied Music

MUSC 100 Recital Attendance (six semesters required) 0

MUSC 151 Private Study 2

MUSC 152 Private Study 2

MUSC 251 Private Study 2

MUSC 252 Private Study 2

MUSC 351 Private Study 2

MUSC 352 Private Study 2

MUSC 451 Private Study 2

MUSC 175 Class Piano: Elementary I 1

MUSC 176 Class Piano: Elementary II 1

MUSC 275 Class Piano: Intermediate I 1

MUSC 276 Class Piano: Intermediate II 1

MUSC 174 Class Voice: Beginning 1

MUSC 301 Junior Recital 0

Theory

MUSC 185/MUSC 186 Ear Training and Sight Singing I and II 4

MUSC 285/MUSC 286 Advanced Ear Training and Sight Singing I and II 4

MUSC 195/MUSC 196 Harmony I and II 6

MUSC 295/MUSC 296 Advanced Harmony I and II 6

MUSC 431 Orchestration 2

Ensemble

MUSC 113 Marching Band 3

An additional four credits from MUSC 113, MUSC 114, MUSC 115, MUSC 117 4

##### Literature

MUSC 211 Introduction to Music History 3

MUSC 311 Music History: 400-1600 3

MUSC 312 Music History: 1600-1827 3

MUSC 313 Music History: 1827 to the Present 3

##### Secondary Instruments

MUSC 214 Stringed Instruments Class 1

MUSC 215 High Brass Instruments Class 1

MUSC 216 Low Brass Instruments Class 1

MUSC 217/MUSC 218 Woodwind Instruments Class I and II 2

MUSC 219 Percussion Instruments 1

##### Music Methods

MUED 179 Freshman Seminar in Music Education 1

MUSC 287 Music Technology 3

MUSC 335 Basic Conducting 2

MUED 279 Elementary General Music Methods and Materials 3

MUED 337 Instrumental Conducting 2

MUED 379 Music in the Elementary and Junior High (or Middle) School 3

MUED 479 Secondary Music Materials and Approaches 3

##### Music Electives

Six music electives excluding ensemble and private study on primary instrument 6

##### Professional Studies

EDUC 413 Adolescent Development and Educational Psychology 4

EDUC 414 Teaching Exceptional Adolescents 3

EDUC 419 Diversity in Secondary Education 3

EDUC 400 Student Teaching 12

Grade of C- or better required in all major and

Professional Studies courses.

To be eligible to student teach, Music Education students must have a GPA of 2.75 in their music major and an overall GPA of 2.5. Students must also pass the Praxis II exam in order to enroll in student teaching (EDUC 400). Students should consult the teacher education program coordinator to obtain the student teaching application and other information concerning student teaching policies.

CREDITS TO TOTAL A MINIMUM OF 134

### **MUSIC EDUCATION - GENERAL/CHORAL (PIANO) (BM)**

#### CURRICULUM CREDITS

#### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing 3  
(minimum grade C-)

First Year Experience (FYE) 1

University Breadth Requirement

Up to 3 credits from each of the University Breadth Requirement categories may be used to simultaneously satisfy the College of Arts and Sciences Breadth Requirements. 12

Discovery Learning Experience (DLE) 3

Multi-cultural Courses 3

#### COLLEGE REQUIREMENTS

Writing: (minimum grade C-) 3

A second writing course involving significant writing experience including two papers with a combined minimum of 3,000 words to be submitted for extended faculty critique of both composition and content. This course must be taken after completion of 60 credit hours.

Appropriate writing courses are normally designated in the semester's Registration Booklet. (See list of courses approved for second writing requirement)

Mathematics: One of the following 0-4

MATH 113 Contemporary Mathematics  
(designed for students who do not intend to continue the study of mathematics)

MATH 114 College Mathematics and  
Statistics

(designed for students who do not intend to continue the study of mathematics)

MATH 115 Pre-Calculus  
(designed for students who intend to continue the study of mathematics)

MATH 221 Calculus I  
MATH 241 Analytic Geometry and  
Calculus A

Successful performance on the college proficiency exam (0 credits awarded).

#### COLLEGE BREADTH REQUIREMENTS

Group A 9

Creative Arts and Humanities. Nine credits representing at least two areas. (This requirement is partially satisfied by MUSC 195 and MUSC 196.)

Group B 9

History and Cultural Change. (MUSC 311, MUSC 312, and MUSC 313 satisfy this requirement.)

Group C 9

Social and Behavioral Sciences Nine credits representing at least two areas. Nine credits representing at least two areas. (MUSC 309 is recommended for partial fulfillment of this requirement.)

Group D 4

Mathematics, Natural Sciences and Technology. One science course with an associated laboratory.

#### MAJOR REQUIREMENTS

##### Applied Music

MUSC 100 Recital Attendance  
(six semesters required) 0

MUSC 151 Private Study: Piano 2

MUSC 152 Private Study: Piano 2

MUSC 251 Private Study: Piano 2

MUSC 252 Private Study: Piano 2

MUSC 351 Private Study: Piano 2

MUSC 352 Private Study: Piano 2

MUSC 451 Private Study: Piano 2

MUSC 155 Private Study: Voice  
(four semesters required) 4

MUSC 480 Vocal Pedagogy 3

MUSC 171 Diction: English and Italian 1

MUSC 271 Diction: German 1

MUSC 272 Diction: French 1

MUSC 301 Junior Recital 0

##### Theory

MUSC 185/MUSC 186 Ear Training and Sight  
Singing I and II 4

MUSC 285/MUSC 286 Advanced Ear Training  
and Sight Singing I and II 4

MUSC 195/MUSC 196 Harmony I and II 6

MUSC 295/MUSC 296 Advanced Harmony I  
and II 6

MUSC 407 Contemporary Music Literature 3

or  
MUSC 431      Orchestration    2

Ensemble: One of the following  
(any 7 semesters)      7

MUSC 108      University Singers

or

MUSC 109      Schola Cantorum

or

MUSC 110      Chorale

Literature

MUSC 211      Introduction to Music History    3

MUSC 311      Music History: 400-1600      3

MUSC 312      Music History: 1600-1827      3

MUSC 313      Music History: 1827 to the  
Present      3

MUSC 328      Choral Literature      2

Secondary Instruments

MUSC 214      Stringed Instruments Class    1

MUSC 215      High Brass Instruments Class 1

or

MUSC 217      Woodwind Instruments Class I

Music Methods

MUED 179      Freshman Seminar in Music  
Education      1

MUSC 287      Music Technology      3

MUSC 335      Basic Conducting      2

MUED 279      Elementary General Music  
Methods and Materials      3

MUED 336      Choral Conducting      2

MUED 378      Secondary Music Methods and  
Materials      3

MUED 478      Secondary Music Materials and  
Approaches: Choral      3

Music Electives

Three credits of music electives excluding  
ensemble and private study on primary  
instrument. (MUSC 407 recommended)      3

Professional Studies

EDUC 413      Adolescent Development and  
Educational Psychology      4

EDUC 414      Teaching Exceptional  
Adolescents      3

EDUC 419      Diversity in Secondary  
Education      3

EDUC 400      Student Teaching      12

Grade of C- or better required in all major and  
Professional Studies courses.

To be eligible to student teach, Music Education  
students must have a GPA of 2.75 in their music

major and an overall GPA of 2.5. Students  
must also pass the Praxis II exam in order to  
enroll in student teaching (EDUC 400). Students  
should consult the teacher education program  
coordinator to obtain the student teaching  
application and other information concerning  
student teaching policies.

CREDITS TOTOTAL A MINIMUM OF    134

## **MUSIC EDUCATION - GENERAL/CHORAL (VOICE) (BM)**

CURRICULUM CREDITS

UNIVERSITY REQUIREMENTS

ENGL 110      Critical Reading and Writing    3  
(minimum grade C-)

First Year Experience (FYE)      1

University Breadth Requirement

Up to 3 credits from each of the University  
Breadth Requirement categories may be used  
to simultaneously satisfy the College of Arts and  
Sciences Breadth Requirements.      12

Discovery Learning Experience (DLE)    3

Multi-cultural Courses    3

COLLEGE REQUIREMENTS

Writing: (minimum grade C-)    3

A second writing course involving significant  
writing experience including two papers with  
a combined minimum of 3,000 words to be  
submitted for extended faculty critique of both  
composition and content. This course must  
be taken after completion of 60 credit hours.  
Appropriate writing courses are normally  
designated in the semester's Registration  
Booklet. (See list of courses approved for second  
writing requirement.)

Mathematics: One of the following    0-4

MATH 113      Contemporary Mathematics  
(designed for students who do not intend to  
continue the study of mathematics)

MATH 114      College Mathematics and  
Statistics (designed for students who do not  
intend to continue the study of mathematics)

MATH 115      Pre-Calculus (designed for  
students who intend to continue the study of  
mathematics)

MATH 221      Calculus I

MATH 241      Analytic Geometry and  
Calculus A

Successful performance on the college  
proficiency exam (0 credits awarded).

## COLLEGE BREADTH REQUIREMENTS

Group A 9  
Creative Arts and Humanities. Nine credits representing at least two areas. (This requirement is partially satisfied by MUSC 195 and MUSC 196.)

Group B 9  
History and Cultural Change. (MUSC 311, MUSC 312, and MUSC 313 satisfy this requirement.)

Group C 9  
Social and Behavioral Sciences. Nine credits representing at least two areas. (Music 309 is recommended for partial fulfillment of this requirement.)

Group D 4  
Mathematics, Natural Sciences and Technology. One science course with an associated laboratory.

## MAJOR REQUIREMENTS

### Applied Music

MUSC 100	Recital Attendance (six semesters required)	0
MUSC 151	Private Study	2
MUSC 152	Private Study	2
MUSC 251	Private Study	2
MUSC 252	Private Study	2
MUSC 351	Private Study	2
MUSC 352	Private Study	2
MUSC 451	Private Study	2
MUSC 175	Class Piano: Elementary I	1
MUSC 176	Class Piano: Elementary II	1
MUSC 275	Class Piano: Intermediate I	1
MUSC 276	Class Piano: Intermediate II	1
MUSC 171	Diction: English and Italian	1
MUSC 271	Diction: German	1
MUSC 272	Diction: French	1
MUSC 480	Vocal Pedagogy	3
MUSC 301	Junior Recital	0

### Theory

MUSC 185/MUSC 186	Ear Training and Sight Singing I and II	4
MUSC 285/MUSC 286	Advanced Ear Training and Sight Singing I and II	4
MUSC 195/MUSC 196	Harmony I and II	6
MUSC 295/MUSC 296	Advanced Harmony I and II	6
MUSC 407	Contemporary Music Literature	3
or		
MUSC 431	Orchestration	2

Ensemble: One of the following (any 7 semesters) 7

MUSC 108	University Singers
or	
MUSC 109	Schola Cantorum
or	
MUSC 110	Chorale

### Literature

MUSC 211	Introduction to Music History	3
MUSC 311	Music History: 400-1600	3
MUSC 312	Music History: 1600-1827	3
MUSC 313	Music History: 1827 to the Present	3
MUSC 328	Choral Literature	2

### Secondary Instruments

MUSC 214	Stringed Instruments Class	1
MUSC 215	High Brass Instruments Class	1
or		
MUSC 217	Woodwind Instruments Class I	

### Music Methods

MUED 179	Freshman Seminar in Music Education	1
MUSC 287	Music Technology	3
MUSC 335	Basic Conducting	2
MUED 279	Elementary General Music Methods and Materials	3
MUED 336	Choral Conducting	2
MUED 378	Secondary General Music Methods and Materials	3
MUED 479	Secondary Music Materials and Approaches: Choral	3

### Music Electives

Three credits of music electives excluding ensemble and private study on primary instrument. (MUSC 407 recommended) 3

### Professional Studies

EDUC 413	Adolescent Development and Educational Psychology	4
EDUC 414	Teaching Exceptional Adolescents	3
EDUC 419	Diversity in Secondary Education	3
EDUC 400	Student Teaching	12

Grade of C- or better required in all major and Professional Studies courses.

To be eligible to student teach, Music Education students must have a GPA of 2.75 in their music major and an overall GPA of 2.5. Students must also pass the Praxis II exam in order to enroll in student teaching (EDUC 400). Students should consult the teacher education program coordinator to obtain the student teaching

application and other information concerning student teaching policies.

CREDITS TO TOTAL A MINIMUM OF 134

### THEORY/COMPOSITION (BM)

#### CURRICULUM CREDITS

##### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing 3  
(minimum grade C-)  
First Year Experience (FYE) 1  
University Breadth Requirement  
Up to 3 credits from each of the University Breadth Requirement categories may be used to simultaneously satisfy the College of Arts and Sciences Breadth Requirements. 12  
Discovery Learning Experience (DLE) 3  
Multi-cultural Courses 3

##### COLLEGE REQUIREMENTS

Writing: (minimum grade C-) 3  
A second writing course involving significant writing experience including two papers with a combined minimum of 3,000 words to be submitted for extended faculty critique of both composition and content. This course must be taken after completion of 60 credit hours. Appropriate writing courses are normally designated in the semester's Registration Booklet. (See list of courses approved for second writing requirement.)

Mathematics: One of the following 0-4  
MATH 113 Contemporary Mathematics  
(designed for students who do not intend to continue the study of mathematics)  
MATH 114 College Mathematics and Statistics  
(designed for students who do not intend to continue the study of mathematics)  
MATH 115 Pre-Calculus  
(designed for students who intend to continue the study of mathematics)  
MATH 221 Calculus I  
MATH 241 Analytic Geometry and Calculus A

Completion of the intermediate-level course (107 or 112 or 214) in French, German, or Italian. The number of credits needed and initial placement will depend on the number of years of high school student of foreign language. Students with three or more years of high school work in a single foreign language, or who have gained proficiency in a foreign language by other

means, may attempt to fulfill the requirement in that language by taking an exemption examination through the Foreign Languages and Literatures Department. 0-12

HIST 101 Western Civilization to 1648 3  
HIST 102 Western Civilization 1648 to the Present 3

##### COLLEGE BREADTH REQUIREMENTS

Two 200-level or higher English literature courses selected from Group A or B. 6  
It is recommended that one of these courses be a poetry course.

Group A 6  
Creative Arts and Humanities. (This requirement is satisfied by MUSC 195 and 196.)

Group B 15  
History and Cultural Change. (This requirement is satisfied by MUSC 311, 312, 313, HIST 101, and 102.)

Group C 9  
Social and Behavioral Sciences. Nine credits representing at least two areas. (Music 309 is recommended for partial fulfillment of this requirement.)

Group D 9  
Mathematics, Natural Sciences and Technology. Nine credits in at least two areas.

##### MAJOR REQUIREMENTS

Applied Music  
MUSC 100 Recital Attendance  
(six semesters required) 0  
MUSC 175/MUSC 176 Class Piano: Elementary I and II 2  
MUSC 275/MUSC 276 Class Piano: Intermediate I and II 2  
Secondary Instruments and Conducting  
MUSC 214 Stringed Instruments Class 1  
MUSC 215 High Brass Instruments Class 1  
MUSC 217 Woodwind Instruments Class I 1  
MUSC 219 Percussion Instruments 1  
MUSC 335 Basic Conducting 2

Theory  
MUSC 185/MUSC 186 Ear Training and Sight Singing I and II 4  
MUSC 285/MUSC 286 Advanced Ear Training and Sight Singing I and II 4  
MUSC 195/MUSC 196 Harmony I and II 6  
MUSC 295/MUSC 296 Advanced Harmony I

	and II	6	
MUSC 287	Music Technology	3	
MUSC 431	Orchestration	2	
MUSC 392	Contrapuntal Writing	2	
MUSC 393	Keyboard Harmony I	2	
MUSC 395	Form Analysis	3	
MUSC 484	Recording Techniques	3	

One of the following concentrations (Theory or Composition): 13

**Theory Concentration**

MUSC 298	Beginning Composition (2 semesters)	2	
MUSC 419	Music Theory Research	3	3
MUSC 421	Special Projects in Music Theory	3	
MUSC Electives	(Applied study is recommended)	5	

**Composition Concentration**

MUSC 298	Beginning Composition (4 semesters)	4	
MUSC 420	Advanced Composition (3 semesters required)	9	

**Literature**

MUSC 211	Introduction to Music History	3	
MUSC 311	Music History: 400-1600	3	
MUSC 312	Music History: 1600-1827	3	
MUSC 313	Music History: 1827 to the Present	3	
MUSC 407	Contemporary Music Literature	3	

**Ensemble**

A variety of ensembles are recommended, including Chamber ensembles 4

Grade of C- or better required in all courses in major.

CREDITS TO TOTAL A MINIMUM OF 126

**HONORS- MUSIC (BA)**

The recipient must complete:

1. All requirements for the Bachelor of Arts in Music
2. All the University's generic requirements for the Honors Degree .

**HONORS- (All Majors) (BS)**

Requirements for the Honors Bachelor of Music

**COURSEWORK:**

A total of 30 hours of honors credit must be earned. These credits must include 12 credits in music and 12 credits at the 300 level or higher.

The following music courses are regularly offered with honors sections:

MUSC 195	Harmony I (Fall)
MUSC 295	Advanced Harmony I (Fall)
MUSC 311	Music History, 400-1600 (Spring)
MUSC 312	Music History, 1600-1827 (Fall)

In addition, the following courses if taken for graduate credit, will qualify for honors credit:  
 MUSC 403/MUSC 603 Chamber Music Literature (Spring)  
 MUSC 405/MUSC 605 Symphonic Literature (Spring)  
 MUSC 407/MUSC 607 Contemporary Music Literature (Fall)  
 MUSC 426/MUSC 608 German Lieder (Spring)  
 MUSC 427/MUSC 608 French Arts Song (Spring)  
 MUSC 428/MUSC 608 Twentieth Century Art Song (Spring)

**CAPSTONE PROJECT:**

All students must take an approved capstone course such as UNIV 401/UNIV 402, UNIV 490, or a capstone in a second major. Any capstone course must be taken for a grade and for at least three credits. Students may also take the following options within the music curriculum:

**MUSIC EDUCATION:**

Music Education majors may take UNIV 468 (3 credits, graded) in the semester of their student teaching, concentrating on a project that will be incorporated into their Student Teaching experience. Contact the Music Office for more information.

**APPLIED MUSIC:**

Applied Music majors may incorporate their senior recital into their project for UNIV 401/ UNIV 402. Contact the Office of Undergraduate Research for more information.

**MUSIC THEORY/COMPOSITION**

Music Theory majors may substitute UNIV 401/ UNIV 402 for MUSC 419 and MUSC 421.

Composition majors may make original compositions the focus of UNIV 401/UNIV 402. Contact the Office of Undergraduate Research for more information.

## MINOR IN MUSIC

A minimum grade of C- is required in each course for music minors.

### MUSIC MINOR: APPLIED MUSIC-PRINCIPAL INSTRUMENT

This title represents all applied music minors, the actual titles of which include the name of the instrument of study (e.g. Applied Music-Bassoon). See a list of applied music minors, or they can be obtained from the Department or the Academic Advisement Center.

The Applied Music minor is for nonmusic majors with some musical background who wish to continue their musical training on a more formal basis or music majors who wish to receive formal training on an additional instrument. Places in the minor program are dependent upon the total load of the applied faculty member involved. Admission into the Applied Music minor is determined by audition and musicality testing. The requirements are:

#### CURRICULUM CREDITS

MUSC 175 Class Piano 1

Not required of persons minoring in Applied Music-Piano.

MUSC 153, MUSC 154, MUSC 253, MUSC 254

Private Study: BA/Minor 8

Lessons will be 1/2 hour per week and will include a repertory class.

Ensemble 4

Ensemble and private study must be taken concurrently. (See Ensemble Policy in the Department of Music Student Handbook) Music Minors with principal instrument of piano, organ or guitar must refer to the Department for required ensembles.

MUSC 185 and MUSC 195 Ear Training and Sight Singing/Harmony I 5

Music Literature/History 3

(MUSC 101 and MUSC 102 do not fulfill this requirement. Any other music history course will do.)

TOTAL CREDITS 21

(For Piano minors 20)

### MUSIC MINOR: CHURCH MUSIC

The minor in Church Music is directed to the

university student who wishes to learn about fundamental aspects of the field of church music. The minor is open to music majors as well as non-majors with appropriate background in keyboard and musical studies. Admission requires departmental approval, based on audition. The program comprises a sequence of courses focusing on historical information, skills, and practical experience relative to the field of church music. Upon completion of the minor, many students will be prepared for positions as church musicians.

#### REQUIRED COURSES: CREDITS

MUSC 179 Organ Class 1

MUSC 279 Introduction to the Organ 2  
(normally taken concurrently)

MUSC 153, MUSC 154, MUSC 253 Private Study: BA/Minor 6

(may be taken in Organ or Voice)

Ensemble (taken concurrently with applied study) 3

MUSC 212 History of Liturgy and Hymns 3

MUSC 291 Practicum in Church Music 1

MUSC 292 Organ Improvisation and Service Playing 2

(Prerequisites: MUSC 185 and MUSC 195; and two semesters of organ study, or permission of the instructor)

MUSC 400 Internship 1-3

(Prerequisites: MUSC 212, MUSC 291, MUSC 292)

TOTAL CREDITS 19-21

### MUSIC MINOR: JAZZ STUDIES

The Music Minor in Jazz Studies offers a concentrated study of the history, theory, and performance elements of the field of jazz. It is directed towards two groups of students: (1) The non-music major who desires a focused study of jazz and its performance techniques; (2) Music Majors who wish to round out their education in music with a structured study of jazz. For this group, the Minor is an important component in a comprehensive education in Music. The requirements are:

#### CREDITS

MUSC 181, MUSC 182, MUSC 281, MUSC 282

Private Study: Jazz Styles/Tech.	8
MUSC 183 Jazz Improvisation	2
MUSC 116, MUSC 321 (four semesters)	
Ensemble	5
MUSC 197 Jazz Harmony	3
MUSC 207 History of Jazz	3

TOTAL CREDITS 21

#### MUSIC MINOR: MUSIC MANAGEMENT STUDIES

The minor in music management studies examines the theory and practice of core principles in both the nonprofit and for-profit sectors of music. It is intended for music majors who wish to broaden the scope of their studies and enhance their career options; and non-music majors with a foundation in music who wish to develop executive careers within the music industry.

Students who are not also music majors must successfully complete (with a grade of C- or better) at least 15 credits of specified music theory courses, before declaring the minor or registering for the core courses listed below. A musicality test will be required for placement in music theory classes. Students interested in the minor in Music Management Studies are strongly urged to seek advisement from the music department upon admission to the University and not later than their sophomore year. Curriculum sheets for this minor are available in the music office and online through the Department of Music website at [www.music.udel.edu](http://www.music.udel.edu)

All students selecting the minor, both music majors and non-music majors, will complete a core component of 10-12 credits as follows:

CREDITS	
MUSC 389	Elements of Music Management 3
MUSC 309	Patterns of Patronage 3
MUSC 464	Internship 1-3
MUSC 488	Principles of Music Industry Practice 3

TOTAL CREDITS 18-23

#### MUSIC MINOR: MUSICAL STUDIES

The Musical Studies minor is for nonmusic majors who wish to increase their knowledge and understanding of the history and theory of music. No audition is required for admission into

the Musical Studies minor. The requirements are:

#### CREDITS

MUSC 185	Ear Training and Sight Singing I	2
MUSC 195	Harmony I	3
MUSC 211	Introduction to Music History	3
MUSC 311	Music History: 400 - 1600	3
or		
MUSC 312	Music History: 1600 - 1827	
or		
MUSC 313	Music History: 1827 to Present	
MUSC History/Literature Elective (MUSC 101 and MUSC 102 do not fulfill this requirement. Any other music history course will do.)		
		3
MUSC Theory Elective (MUSC 186, MUSC 196, MUSC 197, MUSC 287, MUSC 385)		
		2-3

Grade of C- or better required in all courses in minor.

TOTAL CREDITS 16-17

#### Combined BA/MBA Program

The four-year curriculum for the Bachelor of Arts in Music with Music Management Concentration degree contains required courses and electives that prepare the student for the Master in Business Administration curriculum. With this 4+1 plan and the proper scheduling of MBA classes, music students may enter immediately into the MBA program full-time with the possibility of completion within one year.

The following undergraduate courses are recommended for students seeking admission to the MBA program:

ECON 151	Introduction to Microeconomics: Prices and Markets
ECON 152	Introduction to Macroeconomics: The National Economy
ECON 300	Intermediate Microeconomic Theory

Also, it is recommended that students interested in the Combined BA/MBA Program follow OPTION TWO (Math 114 and Math 115) or OPTION THREE (one approved math course at 200-level or above) in fulfilling the Bachelor of Arts College Skill Requirements in the area of Mathematics (see College requirements).

Provisional admission to the MBA program may be obtained in the spring of a student's junior year. Full graduate admission is based

on the fulfillment of the undergraduate degree, results of the Graduate Management Admission Test (GMAT-taken in the Junior year), GPA, work experience, letters of recommendation, extracurricular activities, maturity and a personal interview. Those accepted into the MBA program may be considered for graduate assistantships, Corporate Associates and graduate fellowships upon earning their bachelor's degree.

Applicable fees are those for matriculated undergraduate students for the first four years. During the fifth year of study, and any subsequent period if it becomes necessary, applicable fees are those for matriculated MBA graduate students. The MBA degree is granted upon completing all requirements with a grade point average of at least 3.0, participating in required activities and becoming an active member of the MBA community.

For further information about the 4+1 program, contact the Department of Music and Graduate and Executive Program Office of the Lerner College of Business and Economics.

## Philosophy

Telephone: (302) 831-2359  
<http://www.udel.edu/Philosophy>  
Faculty Listing:  
<http://www.udel.edu/Philosophy/content/home/people.htm>

Philosophy provides training in basic methods of reasoning, both clear thinking procedures for everyday decision making and more formal techniques of logical analysis. It examines fundamental issues and ideas about our knowledge and values. It furnishes a critical perspective on the methods and results of other disciplines.

A major, a minor, or a concentration in philosophy is a useful background for many careers including the teaching of philosophy. Majors often go on to graduate work in other Arts and Sciences disciplines, as well as to further schooling in law, theology, education, data processing, or business. In general, philosophy offers all students opportunities to develop their critical and analytical skills.

The American Philosophical Association's national headquarters is on the Delaware campus [www.apa.udel.edu/apa/](http://www.apa.udel.edu/apa/).

## PHILOSOPHY (BA)

### CURRICULUM CREDITS

University and College requirements.

### MAJOR REQUIREMENTS

Both of the following History of Philosophy courses 6

PHIL 301 Ancient Philosophy

PHIL 303 Modern Philosophy

One of the following Logic courses 3

PHIL 105 Critical Thinking

PHIL 205 Logic

One of the following Ethics courses 3

PHIL 201 Social and Political Philosophy

PHIL 203 Ethics

One of the following Epistemology courses 3

PHIL 305 Twentieth Century Philosophy

PHIL 306 Philosophy of Science

PHIL 320 Theory of Knowledge

One of the following Metaphysics courses 3

PHIL 305 Twentieth Century Philosophy

PHIL 315 Metaphysics

PHIL 330 Philosophy of Mind

PHIL 465 Senior Seminar 3

Three Philosophy elective courses, to include 9  
One three-credit course at the 300-level or above  
One three-credit course with multicultural content.

Note that PHIL 305 can be used to satisfy either the requirement in Epistemology or the requirement in Metaphysics, but not both. A student who takes PHIL 305 must take at least one additional course from one of those two categories.

### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

## HONORS - PHILOSOPHY (BA)

The recipient must complete:

1. All requirements for the Bachelor of Arts in Philosophy.
2. All the University's generic requirements for the Honors Degree.

a At least six of the twelve Honors credits required in the major must be at the 300-level or higher.

b At least three of these Honors credits must be in either PHIL 301 or PHIL 303.

#### MINOR IN PHILOSOPHY

A minor in philosophy requires a minimum of 15 credits, consisting of PHIL 105 or PHIL 205; PHIL 301 or PHIL 303; an additional 300-level PHIL course; and two PHIL electives.

#### Physics And Astronomy

Telephone: (302) 831-2661

<http://www.physics.udel.edu/>

Faculty Listing: <http://www.physics.udel.edu/contact/>

The Department of Physics and Astronomy offers an undergraduate major program leading to the BS in physics, with the option of a concentration in astronomy/astrophysics. A concentration in Geophysics is offered as an option within the BS degree in Geology. There are also majors leading to the BA in physics and to the BA in Physics Education, as well as a minor in physics.

The department maintains a balanced program of instruction for students who wish to acquire some understanding of physics as part of their cultural background, as well as for those who require training in physics in preparation for engineering or scientific careers. Intermediate and advanced courses are offered for students who plan teaching or research careers in physics or related disciplines.

The research activity of the Physics and Astronomy Department and of the Bartol Research Institute, in Sharp Laboratory, is diverse and substantial. Undergraduate participation in research is encouraged.

#### PHYSICS (BA)

##### CURRICULUM CREDITS

University and College requirements.

Note: MATH 241 Analytical Geometry and Calculus A satisfies the Mathematics Skills College requirement and is strongly recommended as the first math course for physics majors, unless the placement exam suggests differently.

#### MAJOR REQUIREMENTS

PHYS 169 Perspectives on Physics and Astronomy 1

PHYS 207/PHYS 208 Fundamentals of Physics I and II (strongly recommended) 8

or

PHYS 201/PHYS 202 Introductory Physics I and II 8

Ordinarily, no more than four credits from among PHYS 201 and PHYS 207 may be counted toward graduation requirements; similarly no more than four from among PHYS 202, PHYS 208. Students interested in majoring in Physics who have taken an introductory sequence other than PHYS 207/PHYS 208 should consult with a member of the Physics faculty to consider the need for additional introductory courses, for which some additional credit toward graduation may be given with permission of the Physics chair.

PHYS 211 Oscillations and Waves 3  
Nineteen credits in Physics, of which fifteen must be at the 300-level or higher 19

One of the following 6-12

MATH 241/MATH 242/ MATH 243

Analytic Geometry and Calculus A, B and C (recommended)

or

MATH 221/MATH 222 Calculus I and II

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

#### PHYSICS (BS)

##### CURRICULUM CREDITS

##### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing 3  
(minimum grade C-)

First Year Experience (FYE) 0-4

University Breadth Requirement 12

Discovery Learning Experience (DLE) 3

Multi-cultural Courses 3

##### COLLEGE REQUIREMENTS

Writing: (minimum grade C-) 3

A second writing course involving significant writing experience including two papers with a combined minimum of 3,000 words to be submitted for extended faculty critique of both

composition and content. This course must be taken after completion of 60 credit hours. Appropriate writing courses are normally designated in the semester's Registration Booklet. (See list of courses approved for second writing requirement.)

College of Arts and Sciences Breadth Requirements: (minimum grade C-) The College Breadth Requirements are in addition to the University Breadth Requirement. Up to 3 credits from each of the University Breadth Requirement categories may be used to simultaneously satisfy these College of Arts and Sciences Breadth Requirements.

A total of eighteen credits from Groups A, B and C is required with a minimum of six credits in each group. The six credits from each group could be from the same area. 18

Group A: Creative Arts and Humanities

Group B: History and Cultural Change.

Group C: Social and Behavioral Sciences

#### MAJOR REQUIREMENTS

Within the Department

Ordinarily, no more than four credits from among PHYS 201 and PHYS 207 may be counted toward graduation requirements; similarly no more than four from among PHYS 202, PHYS 208. Students interested in majoring in Physics who have taken an introductory sequence other than PHYS 207/PHYS 208 should consult with a member of the Physics faculty to consider the need for additional introductory courses, for which some additional credit toward graduation may be given with permission of the Physics chair. All 200-level PHYS courses used to satisfy prerequisite or graduation requirements must be passed with a minimum grade of C-.

PHYS 169	Perspectives: Physics and Astronomy	1
PHYS 207/PHYS 208	Fundamentals of Physics I and II	8
PHYS 211	Oscillations and Waves	3
PHYS 309	20th/21st Century Physics	3
PHYS 310	Introduction to Thermal Physics	3
PHYS 313	Physical Optics	4
PHYS 419	Classical Mechanics I	3
PHYS 424	Quantum Mechanics	3
PHYS 603	Electricity and Magnetism I	3
Additional credits of Physics at or above the 400 level		15
MATH 241/MATH 242/ MATH 243	Analytic	

Geometry and Calculus A, B and C	12	
BISC 207	Introductory Biology	4

One of the following: 6  
 MATH 302/MATH 349 Ordinary Differential Equations and Elementary Linear Algebra  
 MATH 341/MATH 342 Differential Equations with Linear Algebra

One of the following: 4-5  
 CHEM 103 General Chemistry 4  
 CHEM 111/CHEM 119 General Chemistry and Quantitative Chemistry 5

Foreign Language or Computer Science: 0-12  
 Completion of the intermediate-level course (107 or 112) in a given foreign language. Number of credits needed and initial placement will depend on number of years of high school study of foreign language. Students with four or more years of high school work in a single foreign language may attempt to fulfill the requirement in that language by taking an exemption examination.

Or,  
 Completion of the following Computer Science sequence:

CISC 106 or CISC 108	General Computer Science for Engineers or Introduction to Computer Science I	3
CISC 181	Introduction to Computer Science II	3
CISC 220	Data Structures	3
Additional credits of Computer Science at or above the 260 level		3

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

#### PHYSICS (ASTRONOMY/ASTROPHYSICS)(BS)

##### CURRICULUM CREDITS

##### UNIVERSITY REQUIREMENTS

ENGL 110	Critical Reading and Writing	3
(minimum grade C-)		
First Year Experience (FYE)		0-4
University Breadth Requirement		12
Discovery Learning Experience (DLE)		3
Multi-cultural Courses		3

##### COLLEGE REQUIREMENTS

Writing: (minimum grade C-) 3

A second writing course involving significant writing experience including two papers with a combined minimum of 3,000 words to be submitted for extended faculty critique of both composition and content. This course must be taken after completion of 60 credit hours. Appropriate writing courses are normally designated in the semester's Registration Booklet. (See list of courses approved for second writing requirement)

College of Arts and Sciences Breadth Requirements: (minimum grade C-)  
The College Breadth Requirements are in addition to the University Breadth Requirement. Up to 3 credits from each of the University Breadth Requirement categories may be used to simultaneously satisfy these College of Arts and Sciences Breadth Requirements.

A total of eighteen credits from Groups A, B and C is required with a minimum of six credits in each group. The six credits from each group could be from the same area. 18

Group A: Creative Arts and Humanities

Group B: History and Cultural Change

Group C: Social and Behavioral Sciences.

#### MAJOR REQUIREMENTS

Ordinarily, no more than four credits from among PHYS 201 and PHYS 207 may be counted toward graduation requirements; similarly no more than four from among PHYS 202, PHYS 208. Students interested in majoring in Physics who have taken an introductory sequence other than PHYS 207/PHYS 208 should consult with a member of the Physics faculty to consider the need for additional introductory courses, for which some additional credit toward graduation may be given with permission of the Physics chair.

All 200-level PHYS courses used to satisfy prerequisites or graduation requirements must be passed with a minimum grade of C-.

PHYS 169	Perspectives: Physics & Astronomy	1
PHYS 207/PHYS 208	Fundamentals of Physics I and II	8
PHYS 211	Oscillation and Waves	3
PHYS 309	20th/21st Century Physics	3
PHYS 310	Thermodynamics	3
PHYS 313	Physical Optics	4

PHYS 333	Fundamentals of Astrophysics	3
PHYS 419	Classical Mechanics I	3
PHYS 424	Quantum Mechanics	3
PHYS 460	Computational Methods of Physics	3
PHYS 468	Introduction to Research	3
PHYS 469	Observational Astronomy	3

Two of the following	6
PHYS 434	Astrophysics and the Origins of Life
PHYS 630	Galaxies
PHYS 632	Astrophysics
PHYS 633	Stellar Astrophysics
PHYS 634	Physics of the Sun
PHYS 635	Space Physics
PHYS 639	Selected Topics in Astrophysics
PHYS 644	Elementary Particles and Big Bang Cosmology

MATH 241/MATH 242/ MATH 243	Analytic Geometry and Calculus A, B and C	12
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One of the following	6
MATH 302/MATH 349	Ordinary Differential Equations and Elementary Linear Algebra
MATH 341/MATH 342	Differential Equations with Linear Algebra

Additional Credits of Physics or Math at or above the 300 level 12

Foreign Language or Computer Science: 0-12

Completion of the intermediate-level course (107 or 112) in a given foreign language. Number of credits needed and initial placement will depend on number of years of high school study of foreign language. Students with four or more years of high school work in a single foreign language may attempt to fulfill the requirement in that language by taking an exemption examination.

OR

Completion of the following Computer Science sequence:

CISC 106 or CISC 108	General Computer Science for Engineers or Introduction to Computer Science I	3
CISC 181	Introduction to Computer Science	3
CISC 220	Data Structures	3
Additional credits of Computer Science at or above the 260 level		3

## ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

## PHYSICS EDUCATION (BA)

### CURRICULUM CREDITS

University and College requirements.

Note: MATH 241 Analytical Geometry and Calculus A satisfies the Mathematics Skills College requirement and is strongly recommended as the first math course for physics education majors, unless the placement exam suggests differently.

### MAJOR REQUIREMENTS

PHYS 207/PHYS 208 Fundamentals of Physics I and II 8

PHYS 211 Oscillations and Waves 3

PHYS 309 20th/21st Century Physics 3

Sixteen credits in PHYS, fifteen of which must be at the 300-level or higher. 16

MATH 241/MATH 242/ MATH 243 Analytic Geometry and Calculus A, B and C 12

MATH 302 Ordinary Differential Equations 3

CHEM 103/CHEM 104 General Chemistry 8

EDUC 413 Adolescent Development and Educational Psychology 4

EDUC 414 Teaching Exceptional Adolescents 3

EDUC 419 Diversity in Secondary Education 3

EDUC 400 Student Teaching 9

EDUC 420 Reading in the Content Areas 1

SCEN 491 Teaching Science in Secondary Schools 4

A grade of C- or better is required in all required PHYS, MATH, CHEM, EDUC, and SCEN courses.

To be eligible to student teach, Physics Education students must have a GPA of 2.75 in their physics major and an overall GPA of 2.5. They must also pass a teacher competency test as established by the University Council on Teacher Education. Students should consult the teacher education program coordinator to obtain the student teaching application and other information concerning student teaching policies.

CREDITS TO TOTAL A MINIMUM OF 124

## HONORS- PHYSICS (All Concentrations) (BS)

The recipient must complete:

1. All requirements for the Bachelor of Science Degree in Physics

2. All of the University's generic requirements for the Honors Baccalaureate Degree.

3. At least 8 of the 12 Honors credits required in the major must be in Honors PHYS courses. The remaining Honors credits in the major may come from related courses required for the major.

Note: Courses at the 600-level or higher in physics in excess of the 600-level courses required for the BS degree may be considered as Honors courses.

## HONORS- PHYSICS (BA)

The recipient must complete:

1. All requirements for the Bachelor of Arts Degree in Physics

2. All of the University's generic requirements for the Honors Baccalaureate Degree

3. At least 7 of the 12 Honors credits required in the major must be in Honors PHYS courses. The remaining Honors credits in the major may come from related courses required for the major.

Note: Courses at the 600-level or higher in physics may be considered as Honors courses.

## HONORS- PHYSICS EDUCATION (BA)

The recipient must complete:

1. All requirements for the Bachelor of Arts Degree in Physics Education

2. All of the University's generic requirements for the Honors Baccalaureate Degree

3. At least 7 of the 12 Honors credits required in the major must be in Honors PHYS courses. The remaining Honors credits in the major may come from related courses required for the major.

Note: Courses at the 600-level or higher in physics may be considered as Honors courses.

## MINOR IN PHYSICS

Students in other majors can declare a physics minor, consisting of PHYS 207/PHYS 208 or

PHYS 245 plus 9 credits from PHYS courses at or above the 300-level. PHYS 469/PHYS 669 Observational Astronomy cannot be used to fulfill course requirements for this minor. Students considering minoring in physics should consult the physics Undergraduate Program Director for advice or prerequisites for these courses and for assignment to an advisor.

#### MINOR IN ASTRONOMY

The requirements for the minor in Astronomy are PHYS 207, PHYS 208, or PHYS 245 and at least 9 credits from among PHYS 133 or PHYS 144 or PHYS 145 and PHYS 333, PHYS 469, PHYS 434, PHYS630, PHYS 632, PHYS 633, PHYS 634, PHYS 635, PHYS639 and PHYS 644.

Students considering a minor in Astronomy should consult the Director of Physics and Astronomy Undergraduate Programs for advice on prerequisites for these courses and for assignment to an advisor.

Students can earn a minor or major in Physics as well as a minor in Astronomy. However, with the exception of PHYS207,PHYS208 and PHYS245, courses applied toward the Astronomy minor cannot at the same time count toward either a Physics major or Physics minor.

#### POLITICAL SCIENCE AND INTERNATIONAL RELATIONS

Telephone: (302) 831-2355  
<http://www.udel.edu/poscir/>  
Faculty Listing: <http://www.udel.edu/poscir/people/faculty.shtml>

The Department of Political Science and International Relations administers undergraduate programs in political science and an interdisciplinary major in international relations.

#### POLITICAL SCIENCE (BA)

Students may earn a Bachelor of Arts through major programs in Political Science and in Political Science Education, and through a joint program with the Department of Foreign Languages and Literatures in French, German, or Spanish/Political Science. Honors degree options are available for all degrees. A minor in political

science is also available.

Political science majors acquire a broad introduction to the study of government and politics within a liberal arts tradition. All majors are required to complete a set of core courses that provide an introduction to political science, American government, global politics or political theory, and research methods. Beyond the core courses, majors may choose to specialize in one of four concentrations, or to major in political science without a concentration. In both cases, students are required to take their remaining credits at the upper level (300- and 400-level). Course work for both major options with or without a concentration helps students develop analytical and written and oral communication skills and prepares them for a wide array of careers (including law) and active citizenship. Political science majors are strongly encouraged to take advantage of many experiential learning opportunities including internships, independent research under faculty supervision, study abroad, or service learning. Detailed explanations of major requirements and experiential learning opportunities are available in the department office.

Students wishing to change their major to political science must have a minimum cumulative grade point average of 2.0.

The department maintains an advisory program for pre-law students and for students interested in government service.

#### CURRICULUM CREDITS

University and College requirements.

#### MAJOR REQUIREMENTS

Core Courses for the Major:

POSC 150	American Political System	3
POSC 240	Introduction to International Relations	3
POSC 300	Data Analysis for Political Science	3

One of the following courses: 3

POSC 220	Introduction to Public Policy
POSC 270	Comparative Politics
POSC 285	Introduction to Political Theory

Students must choose one of the following options:

Option One: Major Without Concentration  
Eighteen credits distributed as follows:

- nine credits from courses at the 400-level; nine credits from courses at the 300- or 400-level. [Note: three (3) credit hours of either POSC 464 or POSC 468 may count once towards completion of the required 18 hours of upper division coursework.]

A student must take at least one course numbered at the 300- or 400-level in four of the five fields listed below: (Detailed description of courses available from department office.)

- a. American Government and Politics (AG&P)
- b. Comparative Government and Politics (CG&P)
- c. International Relations (IR)
- d. Public Administration and Public Policy (PA&PP)
- e. Political Theory (PT)

#### Option Two: Major With Concentration

Students may choose from among four concentrations: (1) American Politics, (2) Global Studies, (3) Public Law, (4) Public Policy and Public Administration.

#### American Politics Concentration

Six courses (18 credits) from the following two fields, with at least three courses taken in each field and at least three courses taken at the 400-level)

#### Institutions and Processes

- POSC 301 State and Local Government
- POSC 303 Public Administration
- POSC 320 Parties and Interest Groups
- POSC 324 Voting and Elections
- POSC 340 Politics and Media
- POSC 404 Judicial Process
- POSC 405 Constitutional Law of the United States
- POSC 407 American Presidency
- POSC 423 Congress and Public Policy Issues and Policies
- POSC 313 American Foreign Policy
- POSC 318 Public Opinion, Politics and Society
- POSC 322 Race and Politics
- POSC 323 Introduction to Women and Politics
- POSC 343 Society, Politics and Health Care
- POSC 387 American Political Thought
- POSC 401 Gender, Sex, and Law\*
- POSC 402 Civil Liberties: Individual Freedoms
- POSC 403 Civil Liberties: Equal Protection Clause
- POSC 413 Topics in American Government\*
- POSC 422 Political Leadership
- POSC 438 Topics in Political Theory

- POSC 451 Topics in Policy and Administration
- POSC 456 Disaster and Politics

Three (3) credit hours of either POSC 464 or POSC 468 may count once towards completion of the above fields (Institutions and Processes or Issues and Politics).

- POSC 464 Internship in Political Science or
- POSC 468 Undergraduate Research

\*POSC 401 Counts only when titled Gender, Sex and the Law

\*\*May be taken twice when topics differ

#### Global Studies Concentration

Six courses (18 credits) from the following two fields, with at least three courses taken in each field and at least three courses taken at the 400-level.

#### Institutions and Processes

- POSC 309 Political Culture by Country
- POSC 310 European Governments
- POSC 311 Politics of Developing Nations
- POSC 312 Politics of East Asian Development
- POSC 339 Britain and Europe
- POSC 341 Environment of the Multinational Corporation
- POSC 362 Diplomacy
- POSC 363 International Law and Organization
- POSC 372 East Central European Politics
- POSC 408 International Organizations
- POSC 426 Latin American Political Systems
- POSC 427 Politics in China
- POSC 429 Southeast Asia and the World
- POSC 432 Political Systems of the Post-Soviet Union
- POSC 433 African Politics
- POSC 465 Model OAS\*\*
- POSC 475 Model United Nation\*\*

#### Issues and Politics

- POSC 313 American Foreign Policy
- POSC 315 Third World Women in Politics
- POSC 316 International Political Economy
- POSC 329 International Migration
- POSC 330 Political Terrorism
- POSC 333 Contemporary Political Ideologies
- POSC 377 Arab-Israeli Politics

POSC 409 Contemporary Problems in World Politics\*

POSC 410 Islam in Global Affairs

POSC 412 Foreign Policy of the Post-Soviet Union

POSC 414 Topics in American Foreign Policy\*

POSC 415 Force and World Politics

POSC 422 Political Leadership

POSC 430 The Intermestic Relations of Islam and America

POSC 439 Topics in African Politics

POSC 441 Topics in Western European Politics by Country

POSC 442 Topics in Western European Politics

POSC 443 China and the World

POSC 444 Global Agenda\*

POSC 445 Human Rights and World Politics

POSC 446 International Human Rights on Film

POSC 448 Theories of International Relations

POSC 450 Topics in Latin American Politics

POSC 456 Disaster and Politics

Three (3) credit hours of either POSC 464 or POSC 468 may count once towards completion of the above fields (Institutions and Processes or Issues and Politics).

POSC 464 Internship in Political Science  
or  
POSC 468 Undergraduate Research

\*May be taken twice when topics differ.  
\*\*May be counted towards major and concentration once only.

#### Public Law Concentration

Six courses (18 credits) from the following two fields, with at least three courses taken in each field and at least three courses taken at the 400-level)

#### Institutions and Processes

POSC 363 International Law and Organization

POSC 380 Introduction to Law

POSC 404 Judicial Process

POSC 405 Constitutional Law

POSC 407 American Presidency

POSC 423 Congress and Public Policy

#### Issues and Politics

POSC 387 American Political Thought

POSC 401 Gender, Sex, and Law\*

POSC 402 Civil Liberties: Individual Freedoms

POSC 403 Civil Liberties: Equal Protection Clause

POSC 434 Political Thought I

POSC 435 Political Thought II

POSC 445 Human Rights and World Politics

Three (3) credit hours of either POSC 464 or POSC 468 may count once towards completion of the above fields (Institutions and Processes or Issues and Politics).

POSC 464 Internship in Political Science  
or  
POSC 468 Undergraduate Research  
\*May be taken twice when topics differ

#### Public Administration Concentration

POSC 464 Internship in Political Science 3

Five courses (15 credits) from the following two fields, with at least three courses taken in Institutions and Processes and 2 courses taken from Issues and Policies with at least six credit hours at the 400-level.

#### Institutions and Processes

POSC 301 State and Local Government

POSC 303 Public Administration

POSC 355 Urban Politics and Community Development

POSC 408 International Organization

POSC 423 Congress and Public Policy

POSC 452 Urban Issues and Policy Analysis

POSC 454 Organizational Behavior and Theory in the Public Sector

POSC 455 Public Budgeting and Financial Management

#### Issues and Policies

POSC 306 Economic Theory and Politics

POSC 343 Society, Politics and Health Care

POSC 350 Politics and the Environment

POSC 411 Politics and Poverty

POSC 415 Force and World Politics

POSC 424 Energy Policy and Administration

POSC 451 Topics in Policy and Administration

POSC 456 Disaster and Politics

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree

CREDITS TO TOTAL A MINIMUM OF 124

## **POLITICAL SCIENCE EDUCATION (BA)**

### **CURRICULUM CREDITS**

University and College requirements.

### **MAJOR REQUIREMENTS**

POSC 150	American Political System	3
POSC 240	Introduction to International Relations	3
POSC 300	Data Analysis for Political Science	3

One of the following courses: 3

POSC 220	Introduction to Public Policy
POSC 270	Comparative Politics
POSC 285	Introduction to Political Theory

Eighteen credits distributed as follows: 18  
- nine credits from POSC courses at the 400-level  
- nine credits from POSC courses at the 300- or 400-level

Within these eighteen credits, the courses must represent four of the five fields listed below: (Detailed list of courses available from department office.)

- American Government and Politics
- Comparative Government and Politics
- International Relations
- Public Administration and Public Policy
- Political Theory

ECON 151	Introduction to Microeconomics	3
ECON 152	Introduction to Macroeconomics	3
One additional ECON course		3

GEOG 120	World Regional Geography	3
Two additional GEOG courses		6

HIST 104	World History II	3
HIST 206	U.S. History 1865 to Present	3
HIST 491	Planning a Course of Instruction	3
HIST 493	Seminar: Problems in Teaching History and Social Sciences	3

One additional HIST course		3
EDUC 400	Student Teaching	9
EDUC 413	Adolescent Development and Educational Psychology	4
EDUC 414	Teaching Exceptional Adolescents	3

EDUC 419	Diversity in Secondary Education	3
EDUC 420	Reading in the Content Areas	1

A grade of C- or better is required in all required

EDUC, ECON, GEOG, HIST, and POSC courses.

To be eligible to student teach, Political Science Education students must have a GPA of 3.0 in their major and an overall GPA of 2.75. Students must also pass a teacher competency test as established by the University Council on Teacher Education. Students should consult the teacher education program coordinator to obtain the student teaching application and other information concerning student teaching policies.

CREDITS TO TOTAL A MINIMUM OF 124

## **HONORS- POLITICAL SCIENCE OR POLITICAL SCIENCE EDUCATION (BA)**

A candidate for the Honors Bachelor of Arts in Political Science or Political Science Education must:

- Fulfill all requirements for the BA in Political Science or Political Science Education.
- Fulfill all the University's generic requirements for the Honors Degree .
- At least 6 Honors credits in the major must be at the 300 or 400 level.

## **FRENCH, GERMAN, OR SPANISH/POLITICAL SCIENCE (BA)**

### **CURRICULUM CREDITS**

University and College requirements.

### **MAJOR REQUIREMENTS**

French, German, or Spanish/Political Science majors must complete all designated courses and any prerequisite courses (e.g., for admission to the 200-level language courses) with no grade below a C-.

POSC 150	The American Political System	3
(or other required intro courses)		
POSC 240	Introduction to International Relations	3
POSC 270	Comparative Politics	3
POSC 310	European Governments	3
POSC 441	Topics in Western European Politics by Country	3

or		
POSC 442	Topics in Western European Politics	

3 additional courses at the 300 or 400-level with

at least 2 at the 400-level and at least 2 in the area of International Relations 9

One of the following language options:

French

FREN 2xx, 3xx, 4xx (prior to semester abroad) 6

FREN 3xx, 4xx 12

FREN 4xx (literature) (Newark campus only) 3

German

GRMN 2xx, 3xx, 4xx (prior to semester abroad;

GRMN 255 recommended) 6

GRMN 3xx, 4xx 12

GRMN 4xx (literature) (Newark campus only) 3

Spanish

SPAN 2xx, 3xx, 4xx (prior to semester abroad) 6

SPAN 3xx, 4xx 12

SPAN 4xx (literature) (Newark campus only) 3

The following courses taken abroad count toward the French, German, or Spanish/Political Science major:

Political Science

POSC 441

French

FREN 306 or FREN 406

FREN 308

FREN 355 or FREN 455

HIST 339

German

GRMN 306 or GRMN 406

GRMN 308

GRMN 355 or GRMN 455

HIST 339

Spanish

SPAN 306 or SPAN 406

SPAN 308

SPAN 355 or SPAN 455

HIST 339

## ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

Admission and Financial Aid. The departments of Political Science and International Relations and Foreign Languages and Literatures will jointly make decisions regarding admission of students to the program and recommendations for financial aid.

## HONORS - FRENCH, GERMAN, OR SPANISH/ POLITICAL SCIENCE (BA)

Students wishing to complete an Honors BA in French, German, or Spanish/Political Science must:

1. Complete all requirements of the BA in French, German, or Spanish /Political Science.
2. Complete all the University's generic requirements for the Honors Degree .
3. The Honors credits in the major shall come from both participating departments, and shall include at least two courses at the 300-level or above.
4. Achieve a cumulative grade point average for all courses in the major of at least 3.400.

## MINOR IN POLITICAL SCIENCE

The required 15 credits for a minor in Political Science are as follows:

POSC 150 American Political System 3

One additional POSC course at the 200-level or higher 3

One additional POSC course at the 300- or 400-level 3

Two additional POSC courses at the 400-level 6

The three additional POSC courses at the 300- and 400-level should be taken in two of the five fields below:

- a. American Government and Politics
- b. Comparative Government and Politics
- c. International Relations
- d. Public Administration and Public Policy
- e. Political Theory

## International Relations

International Relations (IR) is an interdisciplinary major in the College of Arts and Sciences with core (24 credits), concentration (18 credits), and regional specialization (9 credits) requirements. Students must choose one of four concentrations and one of five regional specializations, as detailed in the curriculum below. An honors degree option is available.

Area Studies Programs: International Relations majors should give serious consideration to adding one of the university's Area Studies programs: African Studies, European Studies, East Asian Studies, Islamic Studies, and Latin American Studies. Course work in these area studies programs will allow students to develop much richer and deeper knowledge of these

regions. Moreover, most of the courses approved for the Regional Specialization within the International Relations major are also approved as fulfilling the Area Studies requirements thereby facilitating a minor or double major with an area studies program.

Study Abroad, Internships, and Undergraduate Research: International Relations majors are strongly encouraged to consider a study abroad experience as a part of their program. Students participating in study abroad programs not only enrich their education through exposure to foreign cultures, but often have the opportunity to take courses, internships, and undertake other educational experiences abroad not otherwise offered in University of Delaware course lists. In many instances, these courses may count towards IR Concentration and Regional Specialization requirements. Similarly, internships and undergraduate research experiences offered from the Newark campus may be applied to IR Concentration and Regional Specialization requirements. Students should check with the Director of Undergraduate Studies when enrolling in study abroad courses and programs, internships, and undergraduate research programs to determine if the specific course, program, or educational experience meets a particular IR major requirement, or, if some major requirement might be waived by means of study abroad, internships, or undergraduate research programs. A maximum of three credit hours of either POSC 464 (internship) or POSC 468 (undergraduate research) may count once towards either the concentration or regional specialization depending on content and with approval of POSC Director of Undergraduate Studies.

Transfer Students: Students wishing to change their major to international relations must have a minimum cumulative grade point average of 2.0.

## INTERNATIONAL RELATIONS (BA)

### CURRICULUM CREDITS

University and College requirements.

### MAJOR REQUIREMENTS

The core consists of 24 hours of course work:

POSC 150	American Political System	3
POSC 240	Introduction to International Relations	3
ECON 151	Introduction to Microeconomics	3
ECON 152	Introduction to Macroeconomics	3

GEOG 120 World Regional Geography 3

One Foreign Languages and Literatures course beyond the intermediate level taught in the relevant language 3

One course from: 3

HIST 102 Western Civilization I648 to Present

or

HIST 104 World History II

And one history course from: 3

HIST 130 Islamic Near East: 600-1500

HIST 131 Islamic Near East I500 to Present

HIST 134 History of Africa

HIST 135 Introduction to Latin American History

HIST 137 East Asian Civilization: China

HIST 138 East Asian Civilization: Japan

### CONCENTRATIONS

Students must choose one of four IR concentrations: (1) Development, (2) Diplomacy and World Order, (3) International Political Economy, or (4) U.S. Foreign Policy. Concentrations require 18 hours of course work. Each concentration has a required POSC course and ECON 340 (or ECON 311 for the Development Concentration). Students must take at least three approved Political Science and International Relations courses. One 3 credit course from IR concentration course lists other than the student's IR concentration may be used to fulfill a student's chosen concentration. At least three courses must be taken at the 400 level in each concentration. Courses used to meet concentration requirements cannot be used to fulfill Specialization requirements.

#### Development Concentration

Required:

POSC 311	Politics of Developing Nations	3
ECON 311	Economics of Developing Countries	3

At least two (6 credits) from: 6

POSC 315	Third World Women in Politics
POSC 316	International Political Economy
POSC 341	Environment of Multinational Corporations
POSC 362	Diplomacy
POSC 408	International Organization
POSC 410	Islam in Global Affairs
POSC 414	Topics in American Foreign Policy

POSC 444	Global Agenda	POSC 330	Political Terrorism
POSC 445	Human Rights and World Politics	POSC 333	Contemporary Political Ideologies
POSC 446	International Human Rights on Film	POSC 341	Environment of Multinational Corporations
POSC 448	Theories of International Relations	POSC 363	International Law and Organization
POSC 456	Disaster and Politics	POSC 408	International Organization
POSC 465	Model OAS	POSC 409	Contemporary Problems of World Politics
POSC 475	Model UN	POSC 410	Islam in Global Affairs
POSC 640	International Development Policy and Administration	POSC 414	Topics in American Foreign Policy
Other courses approved to fulfill the 18 credit minimum in addition to courses listed above 0-6		POSC 415	Force and World Politics
ANTH 222	Technology and Culture	POSC 430	The Intermestic Relations of Islam and America
ANTH 225	Peasant Societies	POSC 444	Global Agenda
ANTH 230	Peoples of the World	POSC 445	Human Rights and World Politics
ANTH 330	Development and Underdevelopment	POSC 446	International Human Rights/ Film
ANTH 370	Culture/Food Production and Economic Development	POSC 448	Theories of International Relations
ANTH 401	The Idea of Race	POSC 456	Disaster and Politics
ECON 340	International Economics	POSC 465	Model OAS
ECON 341	Environment of Multinational Corporations	POSC 475	Model United Nations
ECON 345	Economies in Transition	POSC 604	International Law
ECON 411	Economic Theory of Developing Countries	Other courses approved to fulfill the 18 credit concentration minimum in addition to courses listed above 0-6	
ECON 441	International Trade	ANTH 222	Technology and Culture
ECON 443	International Monetary Economics	ANTH 230	Peoples of the World
GEOG 210	Economic Geography	ANTH 401	The Idea of Race
GEOG 236	Conservation: Global Issues	ECON 311	Economics of Developing Countries
GEOG 422	Resources, Development, and the Environment	ECON 341	Environment of Multinational Corporations
HIST 381	Islam and the West: The History of Mutual Perceptions	ECON 344	The Making of the European Economy
HIST 395	Pan Africanism	ECON 345	Economies In Transition
SOCI 328	Work in Global Economy	ECON 441	Advanced International Microeconomics
SOCI 331	World Population: Profiles and Trends	ECON 443	International Monetary Economics
SOCI 360	Sociology of Religion	GEOG 102	Human Geography
SOCI 361	Racial Inequality	GEOG 203	Introduction to Cultural Geography
FREC 410	International Agricultural Trade and Marketing	GEOG 210	Economic Geography
FREC 420	Agriculture in Economic Development	GEOG 236	Conservation: Global Issues
PHIL 204	World Religions	GEOG 422	Resources Development and the Environment
Diplomacy and World Order Concentration Required:		GEOG 438	World Cities in Comparative Perspective
POSC 362	Diplomacy 3	HIST 210	Introduction to Military History
ECON 340	International Economics 3	HIST 254	Jewish Holocaust 1933-1945
At least two (6 credits) from: 6		HIST 302	The World in Our Time
POSC 313	American Foreign Policy		
POSC 316	International Political Economy		

HIST 351 Europe in Crisis 1919-1945  
 HIST 381 Islam and the West: The History of Mutual Perceptions  
 SOCI 328 Work in a Global Economy  
 SOCI 331 World Population: Profiles and Trends  
 SOCI 360 Sociology of Religion  
 SOCI 361 Racial Inequality  
 FREC 410 International Agricultural Trade and Marketing  
 FREC 420 Agriculture in Economic Development  
 PHIL 204 World Religions

International Political Economy Concentration

Required:

POSC 316 International Political Economy 3  
 ECON 340 International Economics 3

At least two (6 credits) from: 6

POSC 333 Contemporary Political Ideologies  
 POSC 341 Environment of Multinational Corporations  
 POSC 362 Diplomacy  
 POSC 409 Contemporary Problems of World Politics  
 POSC 414 Topics in American Foreign Policy  
 POSC 444 Global Agenda  
 POSC 448 Theories of International Relations  
 POSC 456 Disaster and Politics  
 POSC 640 International Development and Policy Administration

Other courses approved to fulfill the 18 credit concentration minimum in addition to courses listed above 0-6

ANTH 222 Technology and Culture  
 ANTH 230 Peoples of the World  
 ANTH 370 Culture/Food Production and Economic Development  
 ANTH 401 The Idea of Race  
 ECON 311 Economics of Developing Countries  
 ECON 341 Environment of Multinational Corporations  
 ECON 344 The Making of the European Economy  
 ECON 345 Economies in Transition  
 ECON 411 Economic Theory of Developing Countries  
 ECON 441 International Trade  
 ECON 443 International Monetary Economics  
 GEOG 203 Introduction to Cultural Geography  
 GEOG 210 Economic Geography

GEOG 236 Conservation: Global Issues  
 GEOG 422 Resources Development and the Environment  
 GEOG 438 World Cities in Comparative Perspective  
 HIST 210 Introduction to Military History  
 HIST 302 The World in Our Time  
 HIST 351 Europe in Crisis 1919-1945  
 SOCI 328 Work in Global Economy  
 SOCI 331 World Population: Profiles and Trends  
 FREC 410 International Agricultural Trade and Marketing  
 FREC 420 Agriculture in Economic Development

U.S. Foreign Policy Concentration

Required:

POSC 313 American Foreign Policy 3  
 ECON 340 International Economics 3

At least two (6 credits) from: 6

POSC 330 Political Terrorism  
 POSC 333 Contemporary Political Ideologies  
 POSC 341 Environment of Multinational Corporations  
 POSC 362 Diplomacy  
 POSC 363 International Law and Organization  
 POSC 408 International Organization  
 POSC 409 Contemporary Problems of World Politics  
 POSC 410 Islam in Global Affairs  
 POSC 414 Topics in American Foreign Policy  
 POSC 415 Force and World Politics  
 POSC 430 The Intermestic Relations of Islam and America  
 POSC 444 Global Agenda  
 POSC 445 Human Rights and World Politics  
 POSC 446 International Human Rights on Film  
 POSC 448 Theories of International Relations  
 POSC 465 Model OAS  
 POSC 604 International Law

Other courses approved to fulfill the 18 credit concentration minimum in addition to courses listed above 0-6

ANTH 222 Technology and Culture  
 ANTH 230 Peoples of the World  
 ANTH 401 The Idea of Race  
 ECON 311 Economics or Developing Countries

ECON 341	Environment of Multinational Corporations
ECON 344	The Making of the European Economy
ECON 345	Economies in Transition
ECON 411	Economic Theory of Developing Countries
ECON 441	International Trade
ECON 443	International Monetary Economics
GEOG 102	Human Geography
GEOG 210	Economic Geography
GEOG 422	Resources Development and the Environment
GEOG 438	World Cities in Comparative Perspective
HIST 210	Introduction to Military History
HIST 302	The World In Our Time
HIST 351	Europe in Crisis 1919-1945
HIST 381	Islam and the West: The History of Mutual Perceptions
HIST 483	Seminar in Comparative History
SOCI 331	World Population: Profiles and Trends
SOCI 361	Racial Inequality
PHIL 204	World Religions

#### REGIONAL SPECIALIZATIONS

Students must choose one of five regional specializations: (1) Africa, (2) Asia, (3) Europe, (4) Latin America, (5) Middle East. Specializations require 9 hours of course work. At least one course must be at the 400-level in each specialization.

##### African Specialization

Three courses from the following, with at least one course in Political Science, and at least 3 credits at the 400 level 9

POSC 270	Comparative Politics
POSC 311	Politics of Developing Nations
POSC 315	Third World Women in Politics
POSC 433	African Politics
POSC 439	Topics in African Politics
ANTH 225	Peasant Societies
ANTH 330	Development and Underdevelopment
ANTH 333	Peoples of Africa
ECON 311	Economics of Developing Countries
HIST 134	History of Africa
HIST 330	Peasants and Revolution in Africa
HIST 381	Islam and the West: The History of Mutual Perceptions
HIST 394	Africa Since 1960
HIST 395	Pan Africanism
HIST 397	History of South Africa

HIST 439	Women and Revolution in Africa
HIST 440	Seminar in Africa Under Colonial Rule
HIST 475	Seminar: The End of the French Empire

##### Asian Specialization

Three courses from the following, with at least one course in Political Science, and at least 3 credits at the 400 level 9

POSC 270	Comparative Politics
POSC 311	Politics of Developing Nations
POSC 312	Politics of East Asian Development
POSC 315	Third World Women in Politics
POSC 427	Politics in China
POSC 429	Southeast Asia and the World
POSC 443	China and the World
ANTH 210	Peoples and Cultures of Southeast Asia
ANTH 211	Peoples and Cultures of East Asia
ANTH 225	Peasant Societies
ANTH 310	Asian Women's Lives
ANTH 312	Asian Women in the Globalized Workplace
ANTH 330	Development and Underdevelopment
ECON 305	Comparative Economic Systems
ECON 311	Economics of Developing Countries
ECON 341	Environment of Multinational Corporations
ECON 345	Economies in Transition
ECON 411	Economic Theory of Developing Countries
HIST 137	East Asian Civilization: China
HIST 138	East Asian Civilization: Japan
HIST 270	History of Modern Asia
HIST 365	Topics in East Asian History
HIST 368	History of China 1600-1920
HIST 369	China Since 1900
HIST 370	History of Modern Japan
HIST 371	Postwar Japan
HIST 372	Japan's Global Pop Culture
HIST 381	Islam and the West: The History of Mutual Perceptions
HIST 393	History of Modern Vietnam
HIST 479	Seminar in Asian History
PHIL 309	Indian Religion and Philosophy
PHIL 310	Chinese Religion and Philosophy

##### European Specialization

Three courses from the following, with at least one course in Political Science, and at least 3 credits at the 400 level 9

POSC 270	Comparative Politics
POSC 310	European Government

POSC 339 Britain and Europe  
 POSC 372 East Central European Politics  
 POSC 412 Foreign Policy of Post-Soviet Union  
 POSC 432 Political System Post-Soviet Union  
 POSC 441 Topics in Western European Politics: Countries  
 POSC 442 Topics in Western European Politics  
 ANTH 225 Peasant Societies  
 ANTH 325 Peoples of Europe  
 ECON 341 Environment of Multinational Corporations  
 ECON 344 The Making of the European Economy  
 ECON 345 Economies in Transition  
 ECON 444 Analysis of European Economic Performance  
 HIST 254 The Jewish Holocaust, 1933-1945  
 HIST 339 Topics in Modern European History  
 HIST 348 History of Spain:1479-Present  
 HIST 351 Europe in Crisis: 1919-1945  
 HIST 352 Contemporary European Society  
 HIST 353 Modern Germany: 1770-1919  
 HIST 354 Germany in the Twentieth Century 1914 - Present  
 HIST 357 The European City  
 HIST 359 Soviet Russia: 1917-1990  
 HIST 373 Modern Ireland: 1660 to Present  
 HIST 374 History of England to 1715  
 HIST 375 Britain Since 1714  
 HIST 474 Seminar in English History  
 HIST 475 Seminar in Modern European History  
 SPAN 308 Contemporary Spain II  
 GRMN 308 Contemporary Germany II  
 ITAL 308 Contemporary Italy II  
 FREN 308 Contemporary France II

#### Latin American Specialization

Three courses from the following, with at least one course in Political Science, and at least 3 credits at the 400 level 9

POSC 270 Comparative Politics  
 POSC 311 Politics of Developing Nations  
 POSC 426 Latin American Political System  
 POSC 450 Topics in Latin American Politics  
 ANTH 225 Peasant Societies  
 ANTH 330 Development and Underdevelopment  
 ANTH 351 Race in Latin America  
 ANTH 375 Peoples Cultures of Modern Latin America  
 ANTH 380 Peoples Cultures of Mexico and Central America

ECON 311 Economics of Developing Countries  
 ECON 341 Environment of Multinational Corporations  
 ECON 411 Economic Theory of Developing Countries  
 GEOG 226 Geography of Latin America  
 HIST 135 Introduction to Latin American History  
 HIST 331 History of Caribbean I  
 HIST 332 History of Caribbean II  
 HIST 336 Topics in Latin American History  
 HIST 349 Hispanic Societies 1800-Present  
 HIST 430 Seminar in 20th Century Latin American Revolutions  
 HIST 477 Seminar in Latin American History  
 SOCI 319 Sociology of Latin America  
 SPAN 307 Contemporary Latin America II

#### Middle East Specialization

Three courses from the following, with at least one course in Political Science, and at least 3 credits at the 400 level 9

POSC 270 Comparative Politics  
 POSC 311 Politics of Developing Nations  
 POSC 315 Third World Women in Politics  
 POSC 377 Arab-Israeli Politics  
 POSC 410 Islam in Global Affairs  
 POSC 430 The Intermestic Relations of Islam and America  
 ANTH 212 Peoples and Cultures of the Muslim World  
 ANTH 261 Peoples and Cultures of the Middle East  
 ANTH 314 Immigrant Islam: The Muslim Diaspora in the West  
 ANTH 316 Islam and Gender  
 ANTH 330 Development and Underdevelopment  
 ECON 311 Economics of Developing Countries  
 ECON 341 Environment of Multinational Corporations  
 HIST 131 Islamic Near East: 1500 to Present  
 HIST 377 Radicalism and Revolution: Islamic Movement/Modern Middle East  
 HIST 378 Nationalism in Modern Middle East  
 HIST 380 History of the Arab-Israeli Conflict  
 HIST 381 Islam and the West: The History of Mutual Perceptions  
 HIST 444 Seminar: Women in Islamic Middle East

## ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

## HONORS- INTERNATIONAL RELATIONS

A candidate for the Honors Bachelor of Arts in International Relations must:

1. Fulfill all requirements for the BA in International Relations.
2. Fulfill all the University's generic requirements for the Honors Degree .

The Honors credits in the major shall come from at least two different departments represented in the International Relations curriculum.

### Minor in Political Communication

The Department of Communication and Political Science and International Relations offers a minor in Political Communication. This minor provides University of Delaware undergraduates with the opportunity to experience multidisciplinary teaching and research in the leading edge concepts of political communication and digital technology, as expressed and experienced in political campaigns and public policy debates at the local and national levels. In particular, the minor allows Communication and Political Science majors to specialize in Political Communication as well as make the field accessible to students from other majors. The minor will encourage University of Delaware students to become leaders in this rapidly developing field. Contact: Center for Political Communication: 302-831-7771.

The required 18 credits for the minor in Political Communication are as follows:

COMM 340 Politics and the Media 3  
or  
POSC 340 Politics and the Media

One of the following  
(Political Science Component): 3  
POSC 320 Parties and Interest Groups  
POSC 407 American Presidency  
POSC 413 Topics in American Government  
POSC 423 Congress and Public Policy

One of the following  
(Communication Component): 3  
COMM 305 Topics in Communication and Politics  
COMM 306 Digital Technology and Politics  
COMM 309 Introduction to Public Relations  
COMM 313 Communication Principles in Advertising  
COMM 319 Topics in Politics and Broadcast Journalism  
or  
POSC 319 Topics in Politics and Broadcast Journalism

Two of the following  
(Advance Component): 6  
COMM 413 Public Relations Management  
COMM 418 Topics in Mass Communication (relevant topics taught under this number will be counted toward the minor)  
COMM 452 Communication and Persuasion  
COMM 425 Advanced Topics in Politics and Broadcast Journalism  
or  
POSC 425 Advanced Topics in Politics and Broadcast Journalism  
POSC 318 Public Opinion, Politics and Society  
POSC 324 Voting and Elections  
POSC 421 Political Psychology  
POSC 440 Comparative Public Opinion

One of the following  
(Experiential Component): 3  
COMM 364 Internship  
COMM 468 Undergraduate Research in Communication  
POSC 464 Internship in Political Science  
POSC 468 Undergraduate Research in Political Science  
POSC 444 Global Agenda  
or  
COMM 444 Global Agenda  
POSC 447 National Agenda  
or  
COMM 447 National Agenda

Note: Students must complete 28 credits before declaring the Political Communication minor. Only three courses or 9 credits may be in a student's major or crosslisted with a student's major. Students who double major in Political Science and Communication are not eligible for the Political Communication minor.

## Psychology

Telephone: (302) 831-2271

<http://www.psych.udel.edu>

Faculty Listing: <http://www.psych.udel.edu/people/index.asp>

The department of Psychology offers a BA degree with a major in Psychology, a BS degree with a major in Psychology, a BA degree with a major in Psychology Education, a BS degree with a major in Neuroscience and a minor in Psychology.

Psychology is a biological, behavioral, social, and applied science, whose theories are integral to an understanding of ourselves and our place in the world. Students first learn the fundamentals of biology and psychology and then concentrate on courses that examine the relations of the nervous system and of cognitive and social processes to behavior. Detailed instructions regarding an interdepartmental major are available from the Dean's Office.

The courses offered by the Department of Psychology provide students with an understanding of the principles of behavior, of the scientific methods used to derive and add to those principles, and of appropriate ways in which to apply such knowledge. Experimental psychology seeks to isolate in the laboratory the basic processes involved in neural systems, learning, perception, social behavior, personality development, thinking, etc. Applied psychology focuses on methods used to approach problems in settings such as industry, government, and the general community, as well as in the field of mental health. The many aspects of theoretical, experimental and applied psychology are represented in the introductory and 300-level courses, and more advanced courses enable students to pursue special interests in greater depth. Laboratory experiences include the study of cognitive, learning, perceptual, physiological, developmental and social processes, and the investigation of clinically interesting phenomena. Facilities are also available, both on campus and at nearby institutions, for computer modeling of psychological processes and for data analysis.

### PSYCHOLOGY (BA)

#### CURRICULUM CREDITS

University and College requirements.

### MAJOR REQUIREMENTS

PSYC 100 General Psychology 3

Note that PSYC 100 is a prerequisite for all of the required higher level PSYC courses.

PSYC 207 Research Methods 3

Note that PSYC 207 is a prerequisite for all of the required higher level PSYC courses.

PSYC 209 Measurement and Statistics 3

Note that PSYC 209 must be taken after the MATH requirement is fulfilled; PSYC 209 is a prerequisite for all of the required higher level PSYC courses.

One of the following four courses: 3

PSYC 312 Learning and Motivation

PSYC 314 Brain and Behavior

PSYC 316 Biological Bases of Behavior

PSYC 320 Introduction to Neuroscience

One of the following three courses: 3

PSYC 310 Sensation and Perception

PSYC 340 Cognition

PSYC 344 Psychology of Language

One of the following two courses: 3

PSYC 350 Developmental Psychology

PSYC 380 Psychopathology

One of the following three courses: 3

PSYC 370 Research in Personality

PSYC 385 Applied Social Psychology

PSYC 390 Social Psychology

PSYC 394 Cultural Psychology

Two courses at or above the 400-level (except PSYC 466 or PSYC 468) 6

Three credits of any Psychology course (except PSYC 301, PSYC 303, PSYC 325 and PSYC 334) 3

A grade of C- or better is required in all PSYC major-related courses.

### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

### PSYCHOLOGY EDUCATION (BA)

#### CURRICULUM CREDITS

University and College requirements.

## MAJOR REQUIREMENTS

PSYC 100 General Psychology 3  
Note that PSYC 100 is a prerequisite for all of the required higher level PSYC courses.

PSYC 207 Research Methods 3  
Note that PSYC 207 is a prerequisite for all of the required higher level PSYC courses.

PSYC 209 Measurement and Statistics 3  
Note that PSYC 209 must be taken after the MATH requirement is fulfilled; PSYC 209 is a prerequisite for all of the required higher level PSYC courses.

One of the following four courses: 3  
PSYC 312 Learning and Motivation  
PSYC 314 Brain and Behavior  
PSYC 316 Biological Bases of Behavior  
PSYC 320 Introduction to Neuroscience

One of the following three courses: 3  
PSYC 310 Sensation and Perception  
PSYC 340 Cognition  
PSYC 344 Psychology of Language  
One of the following two courses: 3  
PSYC 350 Developmental Psychology  
PSYC 380 Psychopathology

One of the following three courses: 3  
PSYC 370 Research in Personality  
PSYC 385 Applied Social Psychology  
PSYC 390 Social Psychology  
PSYC 394 Cultural Psychology  
Two courses at or above the 400-level (except PSYC 466 or PSYC 468 ) 6

Three credits of any Psychology course (except PSYC 301, PSYC 303, PSYC 325 and PSYC 334) 3

Twenty-four credits in the social sciences with at least three credits in each of the following departments: 24

Anthropology  
Economics  
Geography  
History  
Political Science  
Sociology

Six additional credits selected from the social science departments listed above 6

EDUC 413 Adolescent Development and Educational Psychology 4  
EDUC 414 Teaching Exceptional Adolescents 3  
EDUC 419 Diversity in Secondary Education 3

HIST 491 Planning a Course of Instruction 3  
HIST 493 Seminar: Problems in Teaching History and Social Sciences 3  
EDUC 420 Reading in the Content Areas 1  
EDUC 400 Student Teaching 9

A grade of C- or better is required in all required PSYC, EDUC, HIST, and major related courses.

To be eligible to student teach, Psychology Education students must have a GPA of 3.0 in their major and an overall GPA of 2.75. Students must also pass a teacher competency test as established by the University Council on Teacher Education. Students should consult the teacher education program coordinator to obtain the student teaching application and other information concerning student teaching policies.

## ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TOTOTAL A MINIMUM OF 124

## PSYCHOLOGY (BS)

### UNIVERSITY REQUIREMENTS

#### CURRICULUM CREDITS

ENGL 110 Critical Reading and Writing 3  
(minimum grade C-)  
First Year Experience (FYE) 0-4  
University Breadth Requirement  
Up to 3 credits from each of the University Breadth Requirement categories may be used to simultaneously satisfy the College of Arts and Sciences Breadth Requirements. 12  
Discovery Learning Experience (DLE) 3  
Multi-cultural Courses 3

### COLLEGE REQUIREMENTS:

Foreign Language 0-12  
Breadth Requirements 24  
(Minimum of 6 credits each in Groups A and B; 12 credits in Group C)  
Up to 3 credits from each of the University Breadth Requirement categories may be used to simultaneously satisfy the College of Arts and Sciences Breadth Requirements.  
SECOND WRITING REQUIREMENT 3

## SCIENCE CORE:

Biological Sciences 11

Take these 3 courses:

BISC 207 Introductory Biology I 4  
BISC 208 Introductory Biology II 4  
BISC 306 General Physiology 3

BISC 207 will be taken in the Spring semester and 208 in the Fall semester, as per agreement with the Biology Dept.

Chemistry and Physics 8

Take 2 courses in sequence:

CHEM 103/CHEM 104 General Chemistry 8  
or  
PHYS 201/PHYS 202 Introductory Physics I/II 8  
Mathematics 3-4  
MATH 221 Calculus 3

or  
MATH 241 Analytic Geometry and  
Calculus A 4

Computer Science 3

CISC 108 Introduction to Computer  
Science I 3

## MAJOR REQUIREMENTS:

PSYC 100 General Psychology 3  
PSYC 207 Research Methods 3  
PSYC 209 Measurement and Statistics 3

One of the following four courses: 3

PSYC 312 Learning and Motivation  
PSYC 314 Brain and Behavior  
PSYC 316 Biological Bases of Behavior  
PSYC 320 Introduction to Neuroscience

One of the following three courses: 3

PSYC 310 Sensation and Perception  
PSYC 340 Cognition  
PSYC 344 Psychology of Language

One of the following two courses: 3

PSYC 350 Developmental Psychology  
PSYC 380 Psychopathology

One of the following two courses: 3

PSYC 370 Research in Personality  
PSYC 385 Applied Social Psychology  
PSYC 390 Social Psychology  
PSYC 394 Cultural Psychology

Three courses at the 400-level or the 600-level: 9

Two courses of supervised research: 6

PSYC 468 Research  
or

UNIV 401/UNIV 402 Thesis

A grade of C- or better is required in all BISC, CHEM, PHY, MATH, CISC, and PSYC courses.

## NEUROSCIENCE (BS)

### UNIVERSITY REQUIREMENTS:

#### CURRICULUM CREDITS

#### REQUIRED COURSES IN BIOLOGY

ENGL 110 Critical Reading and Writing 3  
First Year Experience (FYE) 1  
University Breadth Requirement

Up to 3 credits from each of the University Breadth Requirement categories may be used to simultaneously satisfy the College of Arts and Sciences Breadth Requirements.

Discovery Learning Experience (DLE) 3  
Multi-cultural Courses (MCC) 3

#### COLLEGE REQUIREMENTS:

Mathematics 3-4

Foreign Language (through intermediate level) 0-9

Breadth - Group A, Group B, Group C 17\*

\*Students in the College of Arts and Sciences must satisfy 6 credits each in the Breadth Groups A, B, and C.

Up to 3 credits from each of the University Breadth Requirement categories may be used to simultaneously satisfy the College of Arts and Sciences Breadth Requirements.

### MAJOR REQUIREMENTS:

#### REQUIRED COURSES IN BIOLOGY:

Second Writing Requirement 3

BISC 207 Introductory Biology I 4  
BISC 208 Introductory Biology II 4  
BISC 403 Genetics & Evolutionary Biology 3

Plus, 1) both of these courses:

BISC 306 General Physiology 3  
BISC 316 Experimental Physiology 3

OR, 2) both of these courses:

BISC 305 Cell Physiology 3  
BISC 315 Experimental Cell Physiology 3

OR, 3) both of these courses:

BISC 401 Molecular Biology of the Cell 3  
BISC 411 Experimental MB of the Cell 3

TOTAL CREDITS 16

<b>REQUIRED COURSES IN PSYCHOLOGY</b>			
PSYC 100	General Psychology	3	
PSYC 209	Measurement & Statistics	3	

Plus Two of the following:

PSYC 310	Sensation & Perception	3	
PSYC 312	Learning & Motivation	3	
PSYC 340	Cognition	3	
NSCI 414	Drugs & Brain	3	
NSCI 433	Cognitive Neuroscience	3	

TOTAL CREDITS 12

<b>REQUIRED COURSES IN NEUROSCIENCE</b>			
NSCI 320	Introduction to Neuroscience	3	

Plus One of the following:

NSCI 626	Advanced Neuroanatomy	3	
NSCI 627	Advanced Neurophysiology	3	
NSCI 628	Advanced Neuropharmacology	3	

Plus One of the following:

NSCI 629	Integrative Neuroscience I	3	
NSCI 630	Integrative Neuroscience II	3	
NSCI 631	Current Topics in Neuroscience		
BISC 439/BISC 639	Development Neurobiology	3	

TOTAL CREDITS 9

<b>REQUIRED COURSES IN RELATED SCIENCE</b>			
PHYS 201/PHYS 202**	General Physics I & II	8	
CHEM 103/CHEM 104	General Chemistry I & II	8	

\*\*MATH 115, MATH 117, or MATH241 are prerequisites for PHYS 201 and PHYS 202, but pre-med students and students interested in pursuing computational neuroscience and/or neurophysiology are strongly encouraged to take MATH 241.

TOTAL CREDITS 16

TOTAL CREDITS IN MAJOR 54

Note: Students wishing to satisfy the pre-med requirements should consult those requirements in choosing options and in choosing additional courses in related sciences and general education courses.

#### Course Prerequisites

Course	Prerequisites
PSYC 300-level and above PSYC 209	PSYC 100,
PSYC 600-level and above	NSCI 320
BISC 300-level and above +1 year of chemistry	BISC 207, BISC 208

BISC 600-level and above BISC 207, BISC 208  
+2 year of chemistry

#### HONORS-NEUROSCIENCE (BS)

The recipient must complete:

1. All requirements for the Bachelor of Science degree with a major in Neuroscience .
2. All the University's generic requirements for the Honors Degree .
3. Twelve credits of honors courses in Neuroscience, including required collateral courses in other departments. At least six credits must be at the 300 level or higher.

#### HONORS - PSYCHOLOGY OR PSYCHOLOGY EDUCATION (BS)

The recipient must complete:

1. All requirements for the Bachelor of Arts or Science in Psychology or in Psychology Education.
2. All the University's generic requirements for the Honors Degree .
3. Twelve credits of honors courses in Psychology. At least six credits must be at the 300 level or higher.

#### HONORS- PSYCHOLOGY

The recipient must complete:

1. All requirements for the Bachelor of Science degree with a major in Psychology .
2. All the University's generic requirements for the Honors Degree .
3. Twelve credits of honors courses in Psychology. At least six credits must be at the 300 level or higher.

**MINOR IN PSYCHOLOGY**  
A minor in psychology requires 18 credits including PSYC 100; PSYC 207; PSYC 209; one course chosen from PSYC 310, PSYC 312, PSYC 314, PSYC 320, PSYC 340, or PSYC 344; one course chosen from PSYC 350, PSYC 370, PSYC 380, PSYC 390, or PSYC 394; and any three credits in psychology (with the following restrictions: except PSYC 301, PSYC 303, PSYC 325, and PSYC 334).

## Religious Studies

Telephone: (302) 831-8077  
E-mail: AFOX@udel.edu  
<http://www.udel.edu/Philosophy/RelStud/>

The Religious Studies undergraduate minor is described as "interdisciplinary" because it involves work in three or more different departments. The general requirements include 15 credits from a list of approved courses. These must include PHIL 204 (World Religions) and at least two courses at the 300-level or higher in any of the three departments listed. For enrollment forms, course substitutions or exemptions, or a list of the approved courses, contact Professor Alan Fox, Department of Philosophy.

## Sexualities and Gender Studies

Contact: Claire Rasmussen  
Email: [cerasmus@udel.edu](mailto:cerasmus@udel.edu)

The interdisciplinary Sexualities and Gender Studies minor explores the relationship of gender and sexuality to the law, politics, religion, criminal justice, psychology, medicine, education, and the arts. For advisement, course substitutions or exemptions, or a list of approved courses, please see our web site.

The SGST minor consists of 18 credits: three required courses and three elective courses of three credits each. From the elective courses students should take at least two courses at the 300 or 400 level.

### Required Courses 9 credits

SGST 200/WOMS 200 Cultural Introduction to Sexualities and Gender Studies

BISC 152 Biology of Human Sexuality  
or

IFST 401/WOMS 401/ HESC 401 Foundations of Human Sexuality

or

PSYC 336 Psychology of Human Sexuality  
PHIL 216/WOMS 216 Introduction to Feminist Theory

or

PHIL 327/WOMS 327/ BAMS 327 Race, Gender, Science

### Elective Courses 9 credits

ANTH 305/WOMS 305 The Evolution of Human

Sex Roles and Reproduction  
ENGL 214 Literature and Gender/Sexuality  
ENGL 380/WOMS 380 Women Writers  
(when offered as Virginia Woolf and Lesbian Writing)  
ENGL 480 Seminar (when offered as Sexuality and Identity in the Age of Enlightenment)  
FLLT 330/WOMS 330 Varying Authors, Themes and Movements  
HIST 387/SGST 387/WOMS 387 History of Sexuality in the US  
HDFS 338 Sexuality in Contemporary Society  
POSC 401 Topics in Constitutional Law (when offered as Law and Sexuality)  
SGST 208/WOMS 208 Current Issues in Sexuality and Gender  
SGST 301/WOMS 301 Gay and Lesbian Film  
SOC 213/WOMS 213 Men and Women in American Society  
SOC 407/WOMS 407 Sociology of Sex and Gender  
WOMS 215 Queer Sexual Imagery in the Visual Arts  
WOMS 324 Feminism and Sexualities

Other courses as approved by the faculty coordinator of the minor and the Women's Studies Curriculum Committee.

TOTAL CREDITS 18

## Sociology and Criminal Justice

Telephone: (302) 831-2581  
<http://www.udel.edu/soc/>  
Faculty Listing: <http://www.udel.edu/soc/faculty.html>

The Department of Sociology and Criminal Justice administers separate undergraduate programs in Sociology and in Criminal Justice.

### Sociology

The sociology major is designed to provide students with a broad understanding of the dynamics of society and social relations. The curriculum include core courses in social theory and research methods and emphasizes flexibility by allowing students to design a program that fits their particular needs and objectives. There are also concentrations in Emergency & Environmental Management, Health Services, Law and Society, and Social Welfare. Students

changing to the Sociology major from other programs at UD must have a GPA of 2.0 or better.

Field Experience: One important feature of the sociology major program is a field experience in the emergency & environmental management, health services, law and society, and social welfare concentrations. Each field experience involves placement of students in various organizations and departments related to their area of interest, including city offices and agencies, hospitals and other health care organizations, human services and welfare agencies, and law offices and research bureaus. These field placement programs are offered during the winter session and involve four hours of pass/fail course credit. This credit is considered part of the student's related studies requirement.

Over a five-week period students are placed in the field between 120 and 180 hours, depending upon the nature of the work and the need of the student. In addition, students in each field placement meet in a weekly seminar (for five weeks) to discuss and analyze their experiences.

Advantages of the Field Experience Program

- Provides preprofessional training within selected areas of the student's choice.
- Offers future job-related experience with academic supervision and for academic credit.
- Includes certification of these concentrations by the department, which may be beneficial in obtaining employment.
- Offers increased flexibility for the student by allowing choices among various focused, directed concentrations.

## **SOCIOLOGY (BA)**

### **CURRICULUM CREDITS**

University and College requirements.

### **MAJOR REQUIREMENTS**

SOCI 201	Introduction to Sociology	3
SOCI 301	Introduction of Sociological Research	4
SOCI 312	Theories of Society	3

Seven Sociology courses with no more than 9 credits at the 200-level

At least 6 credits must be at the 400-level or higher, but cannot be fulfilled with 400-level directed study courses (466) or internship courses (SOCI 464, SOCI 410, SOCI 412, SOCI

441, SOCI 442).

Five courses in related subjects 15  
chosen in consultation with the advisor, normally from among the following departments:  
Economics, Black American Studies, Criminal Justice, Geography, History, Philosophy, Political Science and International Relations, Psychology, and Statistics.

### **ELECTIVES**

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

## **SOCIOLOGY (EMERGENCY & ENVIRONMENTAL MANAGEMENT) (BA)**

### **CURRICULUM CREDITS**

University and College requirements.

### **MAJOR REQUIREMENTS**

SOCI 201	Introduction to Sociology	3
SOCI 301	Introduction of Sociological Research	4
SOCI 312	Theories of Society	3
Two of the following three courses: 6		
SOCI 324	Issues in Emergency Management	
SOCI 325	Disaster and Society	
SOCI 470	Environmental Sociology	

SOCI 426 Practicum in Emergency and Environmental Management 4  
(This course is required but does not count as part of the 31 Sociology credits for the major.)

Any five courses in Sociology, with no more than 9 credits at the 200-level. 15

At least 6 credits must be at the 400-level or higher, but cannot be fulfilled with 400-level directed study courses (466) or internship courses (SOCI 326, SOCI 410, SOCI 412, SOCI 441, SOCI 442, SOCI 464). The following courses are recommended:

SOCI 204	Urban Communities
SOCI 209	Social Problems
SOCI 311	Sociology of Health Care
SOCI 322	Crowds, Cults, and Revolutions
SOCI 323	Sociology of Risk
SOCI 327	Sociology of Organizations
SOCI 331	World Population: Profiles and Trends
SOCI 341	Welfare and Society

SOCI 361 Racial Inequality

Five additional courses in related subjects chosen in consultation with the Concentration coordinator. 15

The following are recommended but the student is not limited solely to these courses:

- ANFS 270 Biotechnology: Science and Socio-Economics Issues
- ANTH 101 Introduction to Social and Cultural Anthropology
- COMM 245 Mass Communication and Culture
- COMM 256 Principles of Communication Theory
- GEOG 203 Introduction to Cultural Geography
- GEOG 235 Conservation of Natural Resources
- GEOG 236 Conservation: Global Issues
- GEOG 310 Social Geography
- GEOG 320 Water and Society
- GEOG 449 Environment and Society
- GEOL 112 Earth Resources and Public Policy
- POSC 220 Introduction to Public Policy
- POSC 240 Introduction to International Relations
- POSC 303 Public Administration
- POSC 311 Introduction to Politics in Developing Countries
- POSC 350 Politics and the Environment
- POSC 456 Disasters and Politics

**ELECTIVES**

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

**SOCIOLOGY (HEALTH SERVICES) (BA)**

**CURRICULUM CREDITS**

University and College requirements.

**MAJOR REQUIREMENTS**

- SOCI 201 Introduction to Sociology 3
- SOCI 301 Introduction of Sociological Research 4
- SOCI 311 Sociology of Health Care 3
- SOCI 312 Theories of Society 3
- SOCI 410 Health Services Practicum and Seminar. 4

(This course (SOCI 410) is required but does not count as part of the thirty-one sociology credits

for the major.)

One of the following 3

- SOCI 313 Mental Health and Well-being
- SOCI 341 Welfare and Society
- SOCI 348 Theories of Social Work Practice
- SOCI 349 Aging and Society

Any five other courses in Sociology, with no more than 9 credits at the 200-level. 15

At least 6 credits must be at the 400-level or higher, but cannot be fulfilled with 400-level directed study courses (SOCI 466) or internship courses (SOCI 464, SOCI 410, SOCI 412, SOCI 441, SOCI 442).

Suggested courses for students with medical social work interest:

- SOCI 204 Urban Communities
- SOCI 209 Social Problems
- SOCI 213 Men and Women in American Society
- SOCI 215 Race and society
- SOCI 305 Social Class and Inequality
- SOCI 308 The Family
- SOCI 341 Welfare and Society
- SOCI 343 Society, Politics, and Health Care
- SOCI 348 Theories of Social Work Practice
- SOCI 361 Race, Power, and Social Conflict
- SOCI 418 Race, Gender, and Poverty

Suggested courses for students with medical administration interest:

- SOCI 204 Urban Communities
- SOCI 209 Social Problems
- SOCI 215 Race and Society
- SOCI 305 Social Class and Inequality
- SOCI 341 Welfare and Society
- SOCI 343 Society, Politics, and Health Care
- SOCI 361 Racial Inequality
- SOCI 418 Race, Gender, and Poverty
- SOCI 428 Corporate Crime

**Related Work:**

Eleven additional credits of related work are required and may include the following: 11

- ACCT 200 Survey of Accounting
- ANTH 367 Medical Anthropology
- ECON 100 Economic Issues and Policies
- ECON 390 Economics of Health Care (ECON 151 is a pre-requisite)

HIST 382	History of Western Medicine
HIST 449	Seminar: Science, Technology and Medicine
HDFS 201	Life Span Development
HDFS 235	Survey of Child and Family Services
HDFS 270	Families and Development Disabilities
HDFS 332	Counseling Theories
HDFS 403	Concepts in Gerontology
PHIL 241	Ethical Issues in Health Care
PHIL 246	Philosophical Perspectives of Medicine
PHIL 313	Killing and Letting Die
PHIL 444	Medical Ethics
PSYC 420	Mental illness: Historical and Cultural Perspectives
POSC/SOCI 343	Society, Politics and Perspectives
POSC 411	Politics and Poverty
POSC 653	Politics and Healthcare
UAPP 657	Health Policy (seniors only, ECON 100 or 151 recommended)
WOMS 233	Women, Biology and Medicine
WOMS 389	Topics: Women and Health Issues

**ELECTIVES**

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

**SOCIOLOGY (LAW AND SOCIETY) (BA)**

**CURRICULUM CREDITS**

University and College requirements.

**MAJOR REQUIREMENTS**

SOCI 201	Introduction to Sociology	3
SOCI 301	Introduction of Sociological Research	4
SOCI 312	Theories of Society	3
SOCI 345	Sociology of Law	3
SOCI 442	Law and Society Practicum and Seminar.	4

This course is required but does not count as part of the thirty-one Sociology credits for the major.

One of the following courses: 3

SOCI 416	Social Thought and Contemporary Society
SOCI 450	Politics and Society

Any five other courses in Sociology, with no more than 9 credits at the 200-level. At least 6 credits must be at the 400-level or higher, but cannot be fulfilled with 400-level directed study courses (SOCI 466) or internship courses (SOCI 464, SOCI 410, SOCI 412, SOCI 441, SOCI 442). 15

Suggested courses for the study of family/ gender include:

SOCI 213	Men and Women in American Society
SOCI 302	Social Deviance
SOCI 303	Juvenile Delinquency
SOCI 308	The Family
SOCI 330	Population, Law and Society
SOCI 407	Sociology of Sex and Gender

Suggested courses in the organization/work area:

SOCI 327	Sociology of Organizations
SOCI 330	Population, Law and Society
SOCI 428	Corporate Crime
SOCI 450	Political Economy

Twelve credits from the following courses are recommended: 12

CRJU 320	Introduction to Criminal Law
CRJU 347	The Jury: Guilty or Not Guilty
CRJU 357	Seminar on the Police
CRJU 425	Criminal Law and Social Policy
CRJU 4xx	Contemporary Debates
POSC 402	Civil Liberties I
POSC 404	The Judicial Process
POSC 405	Constitutional Law of the U.S.
POSC 406	Civil Liberties II
PHIL 201	Social and Political Philosophy
PHIL 446	Philosophy of Law
HIST 301	The Worker in American Life
HIST 309	U.S. Business and Political Economy

A second writing course in any department 3

A course in oral communication is suggested 3

**ELECTIVES**

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

**SOCIOLOGY (SOCIAL WELFARE) (BA)**

**CURRICULUM CREDITS**

University and College requirements.

## MAJOR REQUIREMENTS

SOCI 201	Introduction to Sociology	3
SOCI 301	Introduction of Sociological Research	4
SOCI 312	Theories of Society	3
SOCI 341	Welfare and Society	3
SOCI 348	Theories of Social Work Practice	3
SOCI 441	Social Welfare Practicum and Seminar.	4

This course is required but does not count as part of the thirty-one Sociology credits for the major.

Any five courses in Sociology, with no more than 9 credits at the 200-level. 15

At least 6 credits must be at the 400-level or higher, but cannot be fulfilled with 400-level directed study courses (SOCI 466) or internship courses (SOCI 464, SOCI 410, SOCI 412, SOCI 441, SOCI 442). The following courses are recommended:

SOCI 204	Urban Communities
SOCI 215	Race in Society
SOCI 302	Social Deviance
SOCI 303	Juvenile Delinquency
SOCI 304	Criminology
SOCI 305	Social Class and Inequality
SOCI 308	The Family
SOCI 349	Aging and Society
SOCI 361	Race, Power and Social Conflict
SOCI 415	Race, Class and Gender
SOCI 418	Race, Gender and Poverty

Eleven additional credits of related work are required and may include the following: 11

POSC 411	Politics and Poverty
PSYC 301	Personality
PSYC 325	Child Psychology
PSYC 333	Psychology of Women
PSYC 334	Abnormal Psychology
HDFS 235	Survey in Child and Family Services
HDFS 332	Counseling Theories

or

Other courses chosen with the approval of the advisor.

## ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

## SOCIOLOGY EDUCATION (BA)

### CURRICULUM CREDITS

University and College requirements.

### MAJOR REQUIREMENTS

SOCI 201	Introduction to Sociology	3
SOCI 301	Introduction of Sociological Research	4
SOCI 312	Theories of Society	3

Seven Sociology courses, with no more than 9 credits at the 200-level. 21

At least 6 credits must be at the 400-level or higher, but cannot be fulfilled with 400-level directed study courses (SOCI 466) or internship courses (SOCI 464, SOCI 410, SOCI 412, SOCI 441, SOCI 442).

Twenty-four credits in the social sciences with at least three credits in each of the following departments: 24

Anthropology course	
Economics course	
Geography course	
History course	
Political Science course	
PSYC 100	General Psychology

Six additional credits selected from the social science departments listed above 6

EDUC 413	Adolescent Development and Educational Psychology	4
EDUC 414	Teaching Exceptional Adolescents	3
EDUC 419	Diversity in Secondary Education	3
EDUC 420	Reading in the Content Areas	1
HIST 491	Planning a Course of Instruction	3
HIST 493	Seminar: Problems in Teaching History and Social Sciences	3
EDUC 400	Student Teaching	9

A grade of C- or better is required in all required SOCI, EDUC, HIST and major related courses.

To be eligible to student teach, Sociology Education students must have a GPA of 3.0 in their major and an overall GPA of 2.75.

Students must pass a teacher competency test as established by the University Council on Teacher Education. Students should consult the teacher education program coordinator to obtain the student teaching application and other information concerning student teaching policies.

CREDITS TO TOTAL A MINIMUM OF 124

## HONORS- SOCIOLOGY (All Concentrations) (BA)

Students wishing to receive an Honors BA in Sociology must complete:

1. All requirements for the Bachelor of Arts degree with a major in Sociology, and where appropriate, concentration requirements (see [www.udel.edu/soc/concentr.htm](http://www.udel.edu/soc/concentr.htm))
2. All of the University's generic requirements for the Honors Baccalaureate degree.
3. Twelve credits of honors courses in Sociology. At least six credits must be at the 300 level or higher.

## MINOR IN SOCIOLOGY

The minor in sociology requires SOCI 201 plus 15 credits in sociology, with at least 9 credits at or above the 300-level. SOCI 301 or SOCI 312 is required or an equivalent course in another social science discipline, such as PSYC 209, ECON 422, ECON 426, MATH 205, POSC 300, POSC 434 or POSC 435.

### Criminal Justice

The Criminal Justice major program is structured around a core of criminal justice courses on such topics as law enforcement, the judicial process, juvenile justice, corrections, and the criminal law. The Criminal Justice curriculum includes courses in sociology, political science, psychology, and at least one foreign language. Junior and senior majors have the opportunity to be placed in a field experience with a criminal justice-related organization.

Students may become criminal justice majors in one of two ways. First, any incoming freshman or transfer student may choose criminal justice as a major. These students are expected to demonstrate both the ability and the commitment to perform well in all of their course work. Those who do not should meet with their advisor to discuss ways to improve their study skills and/or the possibility of selecting another major. Second, matriculated students who have already declared another major or who presently are undeclared may transfer into the Criminal Justice Program if their overall cumulative average at the University of Delaware is at least 2.0.

**Double Major.** With the permission of the dean of the college and the department chair a student may combine their academic and professional

interests in complementary fields by fulfilling requirements for two majors such as criminal justice and English (for a career in journalism), criminal justice and chemistry (for a career in forensic science), criminal justice and political science (for a career in court administration), criminal justice and psychology (for a career in corrections), or criminal justice and sociology (for a career in social work or related fields).

**Residency Requirement.** At least 15 credits of courses applicable to the Criminal Justice major (courses with a CRJU prefix) must be taken at the University of Delaware.

## CRIMINAL JUSTICE (BA)

### CURRICULUM CREDITS

University and College requirements.

### MAJOR REQUIREMENTS

CRJU 110	Introduction to Criminal Justice	3
CRJU 201	Problems of Law Enforcement	3
CRJU 202	Problems of Criminal Judiciary	3
CRJU 203	Problems of Corrections	3

Criminal Justice courses at the 300 or 400-level (except CRJU 495) 18

A grade of C- or better is required in all CRJU courses.

No more than 6 credits of independent study (CRJU 366 or 466) may count toward the requirements for the major.

SOCI 201	Introduction to Sociology	3
SOCI 301	Introduction of Sociological Research	4

(requires a grade of C- or better)

POSC 150	The American Political System	3
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PSYC 100	General Psychology	3
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One of the following four courses: 3

PSYC 301	Personality	
PSYC 303	Introduction to Social Psychology	
PSYC 325	Child Psychology	
PSYC 334	Abnormal Psychology	

One of the following four courses: 3

POSC 401	Topics in Constitutional Law	
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POSC 402	Civil Liberties: Individual Freedoms	
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POSC 403	Civil Liberties: Equal Protection Clause	
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POSC 405	Constitutional Law of the United States	
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## ELECTIVES

After required courses are completed sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

## CRIMINAL JUSTICE (LAW AND SOCIETY) (BA)

### CURRICULUM CREDITS

University and College requirements.

### MAJOR REQUIREMENTS

CRJU 110	Introduction to Criminal Justice	3
CRJU 201	Problems of Law Enforcement	3
CRJU 202	Problems of Criminal Judiciary	3
CRJU 203	Problems of Corrections	3

Criminal Justice electives totaling 18 credits. 18 Electives must include one of the following introductory courses.

CRJU 301	Introduction to Legal Studies
CRJU 345	Sociology of Law

Electives must also include at least one of the following courses containing significant legal or sociolegal content:

CRJU 311	Capital Punishment and the Law
CRJU 320	Introduction to Criminal Law
CRJU 324	American Constitutional History
CRJU 346	Psychology and the Law
CRJU 375	Criminal Procedure
CRJU 425	Criminal Law and Social Policy
CRJU 446	Judging the Jury
CRJU 450	Prisoners and the Law
CRJU 457	Criminal Evidence
CRJU 475	Social Science and the Law
CRJU 367/CRJU 467	Other experimental courses with significant legal or sociolegal component, with the permission of the student's advisor.

NOTE: CRJU 301 Introduction to Legal Studies and CRJU 345 Sociology of Law, if not used to fulfill the introductory course requirement, are also acceptable for the law-related elective requirement.

A grade of C- or better is required in all CRJU courses.

Required related work:

SOCI 201	Introduction to Sociology	3
SOCI 301	Introduction of Sociological Research	4
POSC 105	American Political System	3
PSYC 100	General Psychology	3

One of the following four courses: 3

POSC 401	Topics in Constitutional Law
POSC 402	Civil Liberties: Individual Freedoms
POSC 403	Civil Liberties: Equal Protection Clause
POSC 405	Constitutional Law of the United States

One of the following four courses: 3

PSYC 301	Personality
PSYC 303	Introduction to Social Psychology
PSYC 325	Child Psychology
PSYC 334	Abnormal Psychology

One of the following practicum courses: 4

CRJU 495	Field Experience in Criminal Justice
SOCI 442	Seminar and Practicum in Law and Society

Or, with permission of advisor, a law-related internship supervised by a Criminal Justice or Sociology faculty member as a 366 or 466 course.

## ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

## HONORS BACHELOR OF ARTS - CRIMINAL JUSTICE

### HONORS BACHELOR OF ARTS: CRIMINAL JUSTICE

Students wishing to receive an Honors BA in Criminal Justice must complete:

1. All requirements for the Bachelor of Arts degree with a major in Criminal Justice.
2. All of the University's generic requirements for the Honors Baccalaureate degree.
3. Twelve credits of honors courses in Criminal Justice. At least six credits must be at the 300 level or higher.

Theatre

Telephone: (302) 831-1894

<http://www.pttp.udel.edu>

Faculty Listing: <http://www.pttp.udel.edu/faculty>.

html

The Theatre Department offers three distinct minors all designed to deepen the student's appreciation of the theatre as an art form within the context of a liberal arts education. Coursework in all minors provides students with a foundation for theatre appreciation, focusing on the art and craft of theatre making. The Theatre Department also provides the University with a variety of general education courses in theatre designed to expand appreciation of, and future participation in, theatre. Students interested in performance opportunities should contact one of the amateur theatre groups on campus: E-52, Harrington Theatre Arts Company, or Khulumani Theatre Troupe.

#### PERFORMANCE STUDIES MINOR

#### PERFORMANCE STUDIES MINOR

The Performance Studies Minor is designed for those students who are interested in learning about the performance areas of the theatre - acting, voice, speech, movement, and other related subjects - and who desire the opportunity to explore these areas through the prescribed coursework of a minor.

THEA 204 Introduction to Voice and Speech 3

THEA 205 Introduction to Stage Movement 3

THEA 226 Fundamentals of Acting I 3

THEA 227 Fundamentals of Acting II 3

Elective credits - Choose from the following list: 3

THEA 241 Western Theatre: Live on Stage

THEA 242 Page to Stage: Making Theatre

THEA 340 African American Theatre

THEA 341 Theatre/drama Classical/

Medieval

THEA 348 Special Topics in Theatre

Performance

THEA 360 Fundamentals of Oral

Interpretation

THEA 408 Theatre Practicum for Minors

THEA 420 Fundamentals of Directing

or any DANC course (or other courses approved by advisor)

TOTAL CREDITS 15

#### THEATRE PRODUCTION MINOR

#### THEATRE PRODUCTION MINOR

The Theatre Production Minor is designed for those students who are interested in learning about the production areas of the theatre - scenery, lighting, properties, sound, costuming, stage management, and other related subjects - and who desire the opportunity to explore these areas through the prescribed course work of a minor.

Choose one from the following list: 3

THEA 200 Introduction to Theatre Production

THEA 202 Introduction to Theatre Design

THEA 203 Introduction to Costuming\*

Electives - Choose from the following list: 6-9

THEA 242 Page to Stage: Making Theatre

THEA 300 Fundamentals of Stagecraft

THEA 301 Fundamentals of Properties

Construction

THEA 302 Fundamentals of Stage

Lighting

THEA 303 Fundamentals of Scene

Painting

THEA 304 Fundamentals of Audio

THEA 305 Fundamentals of Costume

Construction

THEA 306 Fundamentals of

Patternmaking

THEA 307 Fundamentals of Draping for the Stage

THEA 308 Fundamentals of Costume

Crafts

THEA 309 Fundamentals of Stage

Management

THEA 310 Fundamentals of

Maskmaking

THEA 311 Fundamentals of Scene

Design

THEA 312 CAD and Computer Applications for Theatre Production

(or other courses as approved by advisor)

THEA 408 Theatre Practicum for Minors 3-6\*\*

TOTAL CREDITS 15

\*Students interested in taking 300-level costume courses as their elective choices should take THEA 203 as their introductory course choice.

\*\*Students electing to take two 300-level electives for a total of 6 crs. must take 6 crs. of THEA 408. Students electing to take three 300-level electives for a total of 9 crs. must take 3 crs. of THEA 408.

## THEATRE STUDIES MINOR

### THEATRE STUDIES MINOR

The Theatre Studies Minor is designed for those students who are interested in a variety of areas of the theatre - performance, production, history, directing, and other related subjects - and who desire the opportunity to explore these areas through the prescribed course work of a minor.

THEA 104 Introduction to Theatre and Drama  
3

Six Theatre (THEA) elective credits at the 200-level 6

Six additional credits chosen from the following:  
6

Theatre (THEA) elective credits at the 300- and/or 400-level\*

Any DANC course or other courses approved by advisor

TOTAL CREDITS 15

\*including THEA 408, Theatre Production Practicum for Minors

## Women's Studies

Telephone: (302) 831-8474

<http://www.udel.edu/WomensStudies>

Faculty Listing:

<http://www.udel.edu/WomensStudies/facultyAndStaff.shtml>

Women's Studies provides courses that allow students to explore a range of interests from the perspectives of anthropology, cultural studies, economics, history, linguistics,

literature, philosophy, political science, psychology, science, sociology, and the arts. This interdisciplinary curriculum helps to prepare students for careers in a variety of fields, including social work, public policy, health, and business, and it provides a good background for further education in such fields as law, education, and social policy. Courses interrogate gender and its relationship to categories such as sexuality, race, class, nationality, religion, and age.

The department offers a BA degree in Women's Studies, with an Honors Degree option and a minor in Women's Studies. The department also administers the interdisciplinary minor in Sexualities and Gender Studies. Majors may choose to complete a concentration in Women in Global Perspective. Interdepartmental and double majors are also options. In addition, an internship gives students an opportunity to integrate classroom learning with practical competencies gained from actual experience. No minimum grade point average is required to begin, but students must not be on academic probation.

## WOMEN'S STUDIES

### CURRICULUM CREDITS

University and College requirements.

### MAJOR REQUIREMENTS

WOMS 201 Introduction to Women's Studies 3

WOMS 202 Women's Studies in Global Context 3

WOMS 216/PHIL 216 Introduction to Feminist Theory 3

WOMS 410 The Study of Women's Studies 3

The remaining eighteen credits of coursework from the following list (only sections cross-listed with WOMS):

WOMS/SGST 200 Cultural Introduction to Sexualities and Gender Studies

WOMS 203/PHIL 202 Contemporary Moral Problems

WOMS 204/COMM 204 Gender and Communication

WOMS 205 Women in the Arts and Humanities

WOMS 206 Women and Work

WOMS/SGST 208 Current Issues in Sexuality and Gender Lecture Series

WOMS 210/PHIL 210 Women and Religion

WOMS/SOCI 211 Men, Conflict, and Social Change  
 WOMS 212 Motherhood in Culture and Politics  
 WOMS 213/SOCI 213 Men and Women in American Society  
 WOMS 215/MSST 215 Queer Sexual Imagery in the Visual Arts  
 WOMS 222/LING 222 Language and Gender  
 WOMS 223/ANTH 223 Food, Gender and Culture  
 WOMS 233/CSCC 233 Womens, Biology, and Medicine  
 WOMS 240 Women and Violence  
 WOMS 242/ARTH 242 Woman as Image and Iimagemaker  
 WOMS 250 Topics in International Women's Studies  
 WOMS 260 Women: Cultural Representations  
 WOMS 290 Gender in International Film  
 WOMS 291/HIST 291 Women's History through Film  
 WOMS 298/BAMS 298 Research on Race, Ethnicity, and Culture  
 WOMS 299 Research on Women  
 WOMS 300/HIST 300 Women in American History  
 WOMS 301/SGST 301 Gay and Lesbian Film  
 WOMS 302/MUSC 302 Women in Music: Alternate Survey  
 WOMS 304 Adolescent Girls  
 WOMS 305/ANTH 305 The Evolution of Human Sex Roles and Reproduction  
 WOMS 310/ANTH 310 Asian Women's Lives  
 WOMS 311/ARTH 311 Renaissance Women, Society and Art  
 WOMS 312/ANTH 312 Asian Women in the Globalized Workplace  
 WOMS 315/POSC 315 Third World Women in Politics  
 WOMS 316/ANTH 316 Islam and Gender  
 WOMS 318/ENGL 318 Studies in Film  
 WOMS 319/FLLT 319 Topics: French Literature in Translation  
 WOMS 320/FLLT 320 Varying Authors and Genres  
 WOMS 321/FLLT 321 Topics: Chinese Literature in Translation  
 WOMS 322/FLLT 322 Topics: Classical Literature in Translation  
 WOMS 323/POSC 323 Introduction to Women and Politics  
 WOMS 324 Feminism and Sexualities  
 WOMS 325/FLLT 325 Topics: German Literature in Translation  
 WOMS 326/FLLT 326 Topics: Hispanic Literature in Translation  
 WOMS 327/PHIL 327 Race, Gender, Science  
 WOMS 328/FLLT 328 Topics: Japanese Literature in Translation  
 WOMS 329/FLLT 329 Topics: Italian Literature in Translation  
 WOMS 330/FLLT 330 Varying Authors, Themes, and Movements  
 WOMS 332 Women, Race and Ethnicity  
 WOMS 333/PSYC 333 Psychology of Women  
 WOMS 334/HIST 334 African American Women's History  
 WOMS 336 Feminist Cultural Studies  
 WOMS 337/ENGL 337 Victorian Fiction  
 WOMS 350/CRJU 350 Gender and Criminal Justice  
 WOMS 352/ENGL 352 Studies in Nineteenth Century Literature  
 WOMS 353/ENGL 353 Twentieth Century British Literature  
 WOMS 363/ANTH 363 Women in Cross-Cultural Perspective  
 WOMS 366 Independent Study  
 WOMS 372/HIST 372 Popular Culture in Urban Japan  
 WOMS 375/FLLT 375 Topics: Russian and Soviet Culture in Translation  
 WOMS 380/ENGL 380 Women Writers  
 WOMS 381/ENGL 381 Women in Literature  
 WOMS 382/ENGL 382 Studies in Multicultural Literature in English  
 WOMS 383/FLLT 383 Topics: Chinese Culture in Translation  
 WOMS 385/FLLT 385 Women and the Economy  
 WOMS 389/CSCC 389/PHIL 389 Topics: Women and Health Issues  
 WOMS 390/ARSC 390 Honors Colloquim  
 WOMS 398/HIST 387 History of Sexuality in the U.S.  
 WOMS 401/HDFS 401/HESC 401 Foundations of Human Sexuality  
 WOMS 402/POSC 401 Topics in Constitutional Law  
 WOMS 407/SOCI 407 Sociology of Sex and Gender  
 WOMS 409/HDFS 409 Domestic Violence Services  
 WOMS 411/HIST 411 Seminar in American History  
 WOMS 413/POSC 413 Problems in American Government  
 WOMS 415/SOCI 415/BAMS 415 Race, Class, and Gender  
 WOMS 417/CRJU 417 Sex Crimes and Punishment  
 WOMS 418/SOCI 418/BAMS 418 Race,

Gender, and Poverty  
 WOMS 419/FASH 419 Social Psychological  
 Aspects of Clothing  
 WOMS 420 Women's Studies Senior Thesis  
 WOMS 430/HDFS 430 Family Life Education  
 WOMS 436/POSC 436 Politics and Literature  
 WOMS 439/HIST 439 Women and Revolution in  
 Africa  
 WOMS 440/COMM 440 Topics:  
 Interpersonal Communication  
 WOMS 442/COMM 442/PSYC 443 Topics:  
 Organizational Communication  
 WOMS 444/HIST 444 Seminar: Women in the  
 Islamic Middle East  
 WOMS 460/SOCI 460/GEOG 460 /HDFS 460  
 Women in International  
 Development  
 WOMS 465/ENGL 465 Studies in Literature  
 Genres, Types, and  
 Movements  
 WOMS 466 Independant Study  
 WOMS 470/PHIL 471 Advanced Philosophical  
 Topics  
 WOMS 472/HIST 471 Seminar in Medieval  
 History  
 WOMS 475/HIST 475 Seminar in Modern  
 European History  
 WOMS 480/ENGL 480 Seminar  
 WOMS 483/HESC 483 Injury Considerations for  
 the Female Athlete  
 WOMS 484/HESC 484 Women in Sports  
 WOMS 498 Internship in Women's Studies

Women's Studies Capstone Course Requirement  
 Every senior Women's Studies major must enroll  
 in the 3 credit capstone course, The Study of  
 Women's Studies (WOMS 410). This course is  
 offered once a year in the spring semester. If  
 a student plans to graduate in the winter, she/  
 he should arrange to take the capstone course  
 during the preceding spring semester.

#### ELECTIVES

After required courses are completed, sufficient  
 elective credits must be taken to meet the  
 minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

#### **WOMEN'S STUDIES (WOMEN IN GLOBAL PERSPECTIVE) (BA)**

#### CURRICULUM CREDITS

University and College requirements.

#### MAJOR REQUIREMENTS

WOMS 201 Introduction to Women's Studies 3  
 WOMS 202 Introduction to International  
 Women's Studies 3  
 WOMS 216/PHIL 216 Introduction to Feminist  
 Theory 3  
 WOMS 410 The Study of Women's Studies 3

Students must take twelve of their credits of  
 coursework from two clusters, Country or  
 Culture Specific Courses (CS) and Comparative  
 Courses (CC). Up to nine of the concentration  
 credits may be from one cluster. They appear  
 designated in the following lists. Take only  
 sections cross-listed with WOMS.

WOMS 200/SGST 200 Cultural Introduction to  
 Sexualities and Gender  
 studies  
 WOMS 203/PHIL 202 Contemporary Moral  
 Problems  
 WOMS 204/COMM 204 Gender and  
 Communication  
 WOMS 205 Women in the Arts and  
 Humanities  
 WOMS 206 Women and Work  
 WOMS 208/SGST 208 Current Issues in  
 Sexuality and Gender Lecture  
 Series  
 WOMS 210/PHIL 210 Women and Religion  
 (CC)  
 WOMS 211/SOCI 211 Men, Conflict, and Social  
 Change  
 WOMS 212 Motherhood in Culture and  
 Politics  
 WOMS 213/SOCI 213 Men and Women in  
 American Society  
 WOMS 215/MSST 215 Queer Sexual Imagery in  
 the Visual Arts  
 WOMS 222/LING 222 Language and Gender  
 WOMS 223/ANTH 223 Food, Gender and Culture  
 (CC)  
 WOMS 233/CSCC 233 Women, Biology, and  
 Medicine  
 WOMS 240 Women and Violence  
 WOMS 242/ARTH 242 Woman as Image and  
 Iimagemaker  
 WOMS 250 Topics in International Women's  
 Studies(CS)  
 WOMS 260 Women: Cultural Representations  
 WOMS 290 Gender in International Film  
 WOMS 291/HIST 291 Women's History through  
 Film  
 WOMS 298/BAMS 298 Research on Race,  
 Ethnicity, and Culture  
 WOMS 299 Research on Women  
 WOMS 300/HIST 300 Women in American

History	Soviet Culture in Translation(CS)
WOMS 301/SGST 301 Gay and Lesbian Film	WOMS 380/ENGL 380 Women Writers
WOMS 302/MUSC 302 Women in Music: Alternate Survey	WOMS 381/ENGL 381 Women in Literature
WOMS 304 Adolescent Girls	WOMS 382/ENGL 382 Studies in Multicultural Literature in English(CC)
WOMS 305/ANTH 305 The Evolution of Human Sex Roles and Reproduction	WOMS 383/FLLT 383 Topics: Chinese Culture in Translation(CS)
WOMS 310/ANTH 310 Asian Women's Lives(CC)	WOMS 385/ECON 385 Women and the Economy
WOMS 311/ARTH 311 Renaissance Women, Society and Art (CS)	WOMS 387/HIST 387 History of Sexuality in the U.S.
WOMS 312/ANTH 312 Asian Women in the Globalized Workplace(CC)	WOMS 389/CSCC 389/PHIL 389 Topics: Women and Health Issues
WOMS 315/POSC 315 Third World Women in Politics(CC)	WOMS 390/ARSC 390 Honors Colloquium
WOMS 316/ANTH 316 Islam and Gender(CS)	WOMS 401/HDFS 401/HESC 401 Foundations of Human Sexuality
WOMS 318/ENGL 318 Studies in Film	WOMS 402/POSC 401 Topics in Constitutional Law
WOMS 319/FLLT 319 Topics: French Literature in Translation (CS)	WOMS 407/SOCI 407 Sociology of Sex and Gender
WOMS 320/FLLT 320 Varying Authors and Genres	WOMS 409/HDFS 409 Domestic Violence Services
WOMS 321/FLLT 321 Topics: Chinese Literature in Translation (CS)	WOMS 411/HIST 411 Seminar in American History
WOMS 322/FLLT 322 Topics: Classical Literature in Translation (CS)	WOMS 413/POSC 413 Problems in American Government
WOMS 323/POSC 323 Introduction to Women and Politics	WOMS 415/SOCI 415/ BAMS 415 Race, Class, and Gender
WOMS 324 Feminism and Sexualities	WOMS 417/CRJU 417 Sex Crimes and Punishmnts
WOMS 325/FLLT 325 Topics: German Literature in Translation (CS)	WOMS 418/SOCI 418/BAMS 418 Race, Gender, and Poverty
WOMS 326/FLLT 326 Topics: Hispanic Literature in Translation (CS)	WOMS 419/FASH 419 Social Psychological Aspects of Clothing
WOMS 327/PHIL 327 Race, Gender, Science	WOMS 420 Women's Studies Senior Thesis
WOMS 328/FLLT 328 Topics: Japanese Literature in Translation (CS)	WOMS 430/HDFS 430 Family Life Education
WOMS 329/FLLT 329 Topics: Italian Literature in Translation (CS)	WOMS 436/POSC 436 Politics and Literature
WOMS 330/FLLT 330 Varying Authors, Themes, and Movements	WOMS 439/HIST 439 Women and Revolution in Africa(CC)
WOMS 332/FLLT 332 Women, Race and Ethnicity	WOMS 440/COMM 440 Topics: Interpersonal Communication
WOMS 333/PSYC 333 Psychology of Women	WOMS 442/COMM 442/PSYC 443 Topics: Organizational Communication
WOMS 334/HIST 334 African American Women's History	WOMS 444/HIST 444 Seminar: Women in the Islamic Middle East(CC)
WOMS 336 Feminist Cultural Studies	WOMS 460/SOCI 460/GEOG 460/HDFS 460 Women in International Development (CC)
WOMS 337/ENGL 337 Victorian Fiction	WOMS 465/ENGL 465 Studies in Literature Genres, Types, and Movements
WOMS 350/CRJU 350 Gender and Criminal Justice	WOMS 466 Independant Study
WOMS 352/ENGL 352 Studies in Nineteenth Century Literature	WOMS 470/PHIL 471 Advanced Philosphical
WOMS 353/ENGL 353 Twentieth Century British Literature(CS)	
WOMS 363/ANTH 363 Women in Cross-Cultural Perspective (CC)	
WOMS 366 Independant Study	
WOMS 372/HIST 372 Popular Culture in Urban Japan(CS)	
WOMS 375/FLLT 375 Topics: Russian and	

Topics

WOMS 472/HIST 471 Seminar in Medieval History

WOMS 475/HIST 475 Seminar in Modern European History (CC)

WOMS 480/ENGL 480 Seminar

WOMS 483/HESC 483 Injury Considerations for the Female Athlete

WOMS 484/HESC 484 Women in Sports

WOMS 498 Internship in Women's Studies

Note: No more than 6 credits in WOMS experimental courses (x67-numbered) may be counted toward the 18-credit requirement. A minimum grade of C- is required in each course.

**Women's Studies Capstone Course Requirement**  
 Every senior Women's Studies major must enroll in the 3 credit capstone course, The Study of Women's Studies (WOMS 410). This course is offered once a year in the spring semester. If a student is planning to graduate in the fall or winter, she/he should arrange to take the capstone course during the preceding spring semester.

**ELECTIVES**

After required courses are completed to fulfill both major and concentration requirements, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

**HONORS -WOMEN'S STUDIES (BA)**

The recipient must complete:

1. All requirements for the Bachelor of Arts degree in Women's Studies.
2. All of the University's generic requirements for the Honors Baccalaureate degree.

The Honors credits required in the major must be in courses in Women's Studies or courses cross-listed with Women's Studies.

**MINOR IN WOMEN'S STUDIES**

A minimum of 18 credit hours is required, which must include the following:

**CURRICULUM CREDITS**

WOMS 201 Introduction to Women's Studies 3  
 Two courses in WOMS or cross-listed with WOMS at or above the 300-level 6  
 Three elective courses in WOMS or cross-listed with WOMS 9

## Alfred Lerner College of Business and Economics

### Alfred Lerner College of Business and Economics

The mission of the Alfred Lerner College of Business and Economics is to foster scholarship and to offer distinctive, innovative educational opportunities related to the successful management and leadership of organizations operating in an environment of scarce resources, rapid change, global competition, and advances in technology.

The Lerner College offers baccalaureate degrees in Accounting, Economics, Economics Education, Finance, Hotel, Restaurant and Institutional Management, International Business Studies, Management, Management Information Systems, Marketing, Operations Management and Sport Management. Honors degrees are available in many degree programs.

Minors are offered in Advertising, Business Administration, Economics, Entrepreneurial Studies, International Business Studies, International Business/International Business with Language, and Management Information Systems. Enrollment in minors is limited and certain qualifications must be met. The Certificate of Business Essentials is also offered to non-business majors.

Undergraduate students are admitted as new students into the Accounting, Economics, Economics Education, Finance, Hotel, Restaurant and Institutional Management, International Business Studies, Management, Management Information Systems, Marketing, Operations Management or Sport Management degree programs, or into Undeclared Business. The undeclared students must select a major in the Lerner College by October 1 of their sophomore year. Students already admitted to the University of Delaware who are matriculated in other programs may apply to change their degree program to Accounting, Economics, Finance, International Business Studies, Management, Management Information Systems, Marketing, Operations Management or Sport Management after successfully completing the required microeconomics course, macroeconomics course, and calculus course, and earning a minimum of 28 credits at the University of Delaware. Students may apply to change their major into HRIM after successful completion of 15 credits. Students should consult with the appropriate department as to application deadlines within the Lerner

College. Review for admission consideration will first be performed for students who have completed all their coursework (including the microeconomics, macroeconomics, and calculus courses) at the University of Delaware. The major criterion used for admission selection is academic performance. The average grade point of those accepted over the past five years is 2.8. Applications for admission to the minors are also reviewed and have similar criteria. Additional information and application forms are available in the five departments; application forms are also available on-line.

Note that Lerner College students who were previously dismissed for academic deficiency and are now applying for readmission to the University may be eligible for readmission into their degree program in the Alfred Lerner College of Business and Economics if they: (1) had met with the Lerner College's assistant dean during advance registration of each semester and term in which they were dismissed, and obtained the dean's prior approval to take courses in the University of Delaware Division of Professional and Continuing Studies to qualify for readmission into the Lerner College, (2) had a minimum of 60 earned credit hours at the time they were dismissed, (3) were enrolled as a Lerner College student at the time of their dismissal, and (4) have a minimum cumulative grade point index of a 2.0 after taking courses in the University of Delaware Division of Professional and Continuing Studies. Only courses that were approved by the Lerner College's assistant dean prior to enrolling in the courses will count towards readmission into the Lerner College.

Also note that Lerner College students who have earned 59 credit hours or less at the time they were dismissed will not automatically be considered, nor are they guaranteed readmission into the Alfred Lerner College of Business and Economics. The major criterion for readmission selection is academic performance. Upon dismissal from the Lerner College, the student must meet with the Lerner College's assistant dean to discuss and determine a University major that he or she is best academically qualified to pursue prior to enrolling in courses during the dismissal period. If a major in business continues to be the most appropriate major for the student to pursue, in order to qualify for readmission, the student must: (1) have obtained the assistant dean's approval, prior to the beginning of each semester or term,

to take courses in the University of Delaware Division of Professional and Continuing Studies, and (2) have a cumulative grade point index of a 2.0.

All dismissed Lerner College students who seek readmission into the Alfred Lerner College of Business and Economics, regardless of their total number of credit hours must, with prior approval of the assistant dean, take courses in the University of Delaware Division of Professional and Continuing Studies. Students will only be permitted to take a maximum total of 7 credit hours each semester or term in the Division of Professional and Continuing Studies during their dismissal period. If a major outside of the Alfred Lerner College of Business and Economics is determined to be more appropriate for the student to pursue, the student must meet with the assistant dean of the college in which the major is offered and comply with that college's readmission policy.

### **Dean's Scholar Program**

The Dean's Scholar Program exists to serve the needs of students whose clearly defined educational goals cannot be effectively achieved by pursuing the standard curricula for all existing majors, minors, and interdepartmental majors sponsored by the University. Driven by an overarching passion or curiosity that transcends typical disciplinary bounds and curricula, a Dean's Scholar's intellectual interests may lead to broad interdisciplinary explorations of an issue or to more intense, in-depth studies in a single field at a level akin to graduate work. In consultation with faculty advisors and the deputy/assistant dean of their college, Dean's Scholars design an imaginative and rigorous individual plan of study to meet the total credit hours required for graduation. Contact the deputy dean in the Alfred Lerner College of Business and Economics or go to [www.udel.edu/deansscholar/](http://www.udel.edu/deansscholar/) for more information and the application.

### **Minor in Entrepreneurial Studies**

The minor in entrepreneurial studies is designed for students who may be interested in conceptualizing, developing, and launching their own business. This would involve everything from doing market research, writing a business plan, developing a product, and finding someone

to fund the business. The minor is not restricted to students who are majoring in the Lerner College of Business and Economics. Applications to be admitted into the Entrepreneurial Studies minor should be filled out and submitted online during the first semester of the student's sophomore year upon successful completion of ECON 100 or 151 and ACCT 200 or 207. Acceptance will be based on academic standing, motivation for proposed study, and availability of seats. More information is available at [www.lerner.udel.edu/centers/es/minor](http://www.lerner.udel.edu/centers/es/minor). The requirements for the minor are as follows:

#### **Required Courses:**

ECON 151	Introduction to Microeconomics: Prices and Markets	3
ACCT 207	Accounting I	3
ECON 350	Economics of Entrepreneurship	3
ENTR 301	Introductory Entrepreneurship	3
ENTR 410	Business Venture Competition	3
ENTR 411	Special Topics in Entrepreneurship	3

One of the following courses: 3

BUAD 444	Entrepreneurship and Small Business Management	
ENTR 460/ELEG 460	High Technology Entrepreneurship	
FREC 430	Establishing and Managing a Food and Agribusiness Enterprise	
HRIM 314	Hospitality Entrepreneurship and Venture Creation	
LEAD 411	Topics in Leadership Dynamics (permission required from Leadership Studies Department)	

Students outside the Lerner College of Business and Economics may also need to meet the requirements of the Certificate of Business Essentials.

### **Certificate of Business Essentials**

The Certificate of Business Essentials is designed to provide non-business majors with an understanding of core business principles and to expose these students to key business tools. The Certificate may be attractive to students in a variety of majors outside of the Alfred Lerner College of Business and Economics to augment their major field of study and provide alternative career options. The following required courses work together to provide these students with a fundamental understanding of the language and

fundamental principles of business. All courses require a minimum grade of C-.

#### CURRICULUM CREDITS

ECON 100	Economic Issues and Policies	3
BUAD 100	Introduction to Business	3
ACCT 200	Survey of Accounting	4
FINC 200	Fundamentals of Finance	3

Both FINC 200 and BUAD 100 are restricted to students who have been admitted into the Certificate program, and to those students who need to take these classes to fulfill a requirement for their major or minor. It is recommended that students follow the course sequence listed above. All courses are designed exclusively for non-business majors (excluding Hotel, Restaurant and Institutional Management); these courses will NOT count towards required coursework for any student who eventually transfers into a business major in the Alfred Lerner College of Business and Economics. Full-time matriculated students and professional and continuing studies students may apply to the Certificate program during the semester in which they will complete at least 28 credits and achieve sophomore status, and when the Certificate coursework can be completed prior to graduation. Admission will be limited to top students as measured by GPA. Students should consult the program's website for application deadlines. Students must meet with their advisor prior to applying for the Certificate of Business Essentials to determine how these credits will be allocated toward their degree program. The application and allowable course substitutions are available on-line at: [www.pcs.udel.edu/essentials/](http://www.pcs.udel.edu/essentials/)

#### **Discovery- And Service-Based Learning Opportunities And Clinical Experiences in HRIM**

As a professional, service-oriented department, HRIM stresses opportunities for learning through experiences that require students to apply their academic training and encourage them to develop their newly acquired skills and knowledge. HRIM has a unique combination of facilities that provide a wide range of practical experience settings, and HRIM offers special programs that encourage personal and professional development.

The Courtyard Newark at the University of Delaware is operated by the Shaner Hotel Group and provides on-campus lodging for alumni,

parents, guests and conference attendees. It also provides enhanced educational experiences in the Marriott Center for Hospitality and Tourism for students in the Department of Hotel, Restaurant and Institutional Management by offering opportunities to gain hundreds of hours of practical experience in a teaching and research laboratory located in a hotel setting. Students gain valuable experience in sales, marketing, revenue management, hotel engineering and housekeeping. For further information, call (302) 831-6077.

The Vita Nova/Foodservice Laboratory is part of the Hotel, Restaurant and Institutional Management (HRIM) Department and is located on the second floor of the Trabant University Center. The laboratory consists of Vita Nova, a student-operated, 65-seat dining room open to the public; a display kitchen; the Copeland Vinotek wine cellar; the Darden Bistro; and a teaching and demonstration kitchen with state-of-the-art video and satellite capabilities. Students in the HRIM program use the facility to understand the challenges and dynamics of operating a business. On a daily basis, students rotate through management and skill-level assignments to learn the details required to exceed guest expectations. For further information, call (302) 831-6077.

#### **Accounting and Management Information Systems**

Telephone: (302) 831-2961  
<http://www.lerner.udel.edu/departments/accounting-mis>  
Faculty Listing: <http://www.lerner.udel.edu/faculty-staff/acctmis>

The mission of the Department of Accounting and Management Information Systems (MIS) is to offer distinctive and innovative educational opportunities related to the professions of Accounting and MIS, promote scholarship in Accounting and MIS, and to advance successful leadership in a rapidly changing technological environment. The Department offers majors in Accounting and MIS, as well as minors in MIS and Entrepreneurial Studies, to undergraduate students.

The Bachelor of Science for Accounting majors is designed to prepare students for an accounting career in industry, in government, or in public accounting. An Honors Degree option

is available. During the first two years, the accounting major follows a format of courses that enables the student to acquire a broad liberal arts background. The accounting program is designed to provide flexibility in the selection of humanities and social and natural science courses from broad groupings to augment the professional development of the student. The undergraduate accounting major includes work in accounting information systems, intermediate, cost, income tax, advanced accounting, and auditing.

The program provides preparation for the Uniform Certified Public Accountant Examination, the Certificate in Management Accounting, and other professional certifications.

Candidates for a Bachelor of Science degree must: (1) earn a minimum of 120 credits, (2) achieve a minimum cumulative GPA of C (2.0) on all work undertaken at the University of Delaware, (3) fulfill the course requirements of the degree program, and (4) achieve at least a C- in specified business, finance, economics, and accounting courses. Of the required upper division ACCT courses (ACCT 302, ACCT 315, ACCT 316, ACCT 327, ACCT 413, ACCT 415, ACCT 417, and ACCT 425), no more than two may be transferred from another AACSB institution.

The Department offers a 4 + 1, 150 credit combined, Bachelor's and Master's degree in Accounting. Please see the description in the Graduate Catalog.

The Management Information Systems major is designed to prepare students for careers that leverage information technology in a business environment, enabling graduates to use information systems to manage the organization. An Honors Degree option is available. During the first two years, the MIS major follows a format of courses that enables the student to acquire a broad liberal arts background. The MIS program is designed to provide flexibility in the selection of humanities and social and natural science courses from broad groupings to augment the professional development of the student. The undergraduate MIS major includes work in programming languages, databases, system analysis and design, business problem solving, and project management. MIS majors are also required to select a professional concentration in one discipline of business (Accounting, Economics, Finance, Management, Marketing or Operations Management) to promote a thorough

understanding of the issues, needs, and practices of that area of business.

Students in the Lerner College of Business and Economics and students outside the Lerner College may take courses leading to the minor in Management Information Systems.

Telephone: (302) 831-6515  
[www.lerner.udel.edu/departments/accounting-mis/undergraduate/mis-minor](http://www.lerner.udel.edu/departments/accounting-mis/undergraduate/mis-minor)

## ACCOUNTING (BS)

### CURRICULUM CREDITS

#### UNIVERSITY REQUIREMENTS

ENGL 110	Critical Reading and Writing	3
	(minimum grade C-)	
First Year Experience (FYE)		0-4
Breadth Requirements		12
Discovery Learning Experience (DLE)		3

#### Multi-cultural Courses 3

Three credits in an approved course or courses stressing multi-cultural, ethnic, and/or gender-related course content.

#### MAJOR REQUIREMENTS

Twelve Humanities credits from: 12  
 Art History, History, English (except composition or similar courses), Philosophy, Music (except credit for participation in instrumental and/or choral organizations), Theatre (except performance), Comparative Literature, and literature courses in a foreign language.

Three Social and Behavioral Science credits from: 3  
 Anthropology, Psychology, or Sociology.

Choose one of the following MATH combinations (Option I, II, or III): 6-12

#### Option I

MATH 221	Calculus I
MATH 230	Finite Mathematics with Applications

#### Option II

MATH 241	Analytic Geometry and Calculus A
MATH 230	Finite Mathematics with Applications

#### Option III

MATH 241	Analytic Geometry and Calculus A
MATH 242	Analytic Geometry and Calculus B

MATH 243 Analytic Geometry and Calculus C

MATH 201/MATH 202 Introduction to Statistics I and II 6

One of the following: 3

ENGL 301 Expository Writing

ENGL 302 Advanced Composition

ENGL 312 Written Communications in Business

ENGL 410 Technical Writing

COMM 212 Oral Communication in Business

Six credits chosen from: 6

Mathematics beyond Calculus I, Biological Sciences, Chemistry, Entomology, Geology, Marine Studies, Physics, Physical Geography, Physical Science, or Plant Science.

ECON 151 Introduction to Microeconomics: Prices and Markets (minimum grade C-) 3

ECON 152 Introduction to Macroeconomics: National Economy (minimum grade C-) 3

BUAD 301 Introduction to Marketing (minimum grade C-) 3

BUAD 306 Operations Management (minimum grade C-) 3

BUAD 309 Management and Organizational Behavior (minimum grade C-) 3

FINC 311 Principles of Finance (minimum grade C-) 3

FINC 313 Financial Markets 3

ECON 302 Banking and Monetary Policy 3

MISY 160 Business Computing: Tools and Concepts 3

ACCT 207 Accounting I (minimum grade C-) 3

ACCT 208 Accounting II (minimum grade C-) 3

ACCT 302 Accounting Information Systems (minimum grade C-) 3

ACCT 315 Intermediate Accounting I (minimum grade C-) 3

ACCT 316 Intermediate Accounting II (minimum grade C-) 3

ACCT 350 Business Law I 3

ACCT 351 Business Law II 3

In the following 5 required courses, a grade of C- or better must be earned in all but one:

ACCT 327 Cost Accounting 3

ACCT 413 Income Tax Accounting 3

ACCT 415 Advanced Accounting 3

ACCT 417 Auditing 3

ACCT 425 Strategic Information Systems and Accounting 3

Professional Electives

ACCT or FINC courses (at 300-level or higher) 6

See ACCT course descriptions for enrollment restrictions. (ACCT 352, may not apply).

#### ELECTIVES

In addition to required courses, sufficient credits must be taken to meet the minimum credits required for the degree. Elective courses should be chosen from outside the Alfred Lerner College of Business and Economics (with some exceptions and exclusions: see Department for specifics). No more than two credits of HESC 120 may apply.

CREDITS TO TOTAL A MINIMUM OF 120

#### HONORS- ACCOUNTING (BS)

The recipient must complete:

1. All requirements for the Bachelor of Science in Accounting.
2. All of the University's generic requirements for the Honors Baccalaureate degree.

The Honors credits in the major will normally include ACCT 207 and ACCT 208. They may include required courses from other departments in the Alfred Lerner College of Business and Economics. An ACCT course taken at the 600-level will count for Honors credit.

#### MANAGEMENT INFORMATION SYSTEMS (MIS) (BS)

#### CURRICULUM CREDITS

#### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing 3 (minimum grade C-)

First Year Experience (FYE) 0-4

Breadth Requirement 12

Discovery Learning Experience (DLE) 3

Multi-cultural Course 3

Three credits in an approved course or courses stressing multi-cultural, ethnic, and/or gender-related course content.

#### MAJOR REQUIREMENTS

Twelve Humanities credits from: 12

Art History, History, English (except composition or similar course), Foreign Languages (up to 6

credits may be grammar courses), Philosophy, Music (except credit for participation in instrumental and/or choral organizations), Theatre (except performance), Comparative Literature, and literature courses in a foreign language. No more than nine credits may be taken in one department.

Six social and behavioral science credits from Anthropology, Psychology, or Sociology 6

ECON 151	Introduction to Microeconomics: Prices and Markets (minimum grade C-)	3
ECON 152	Introduction to Macroeconomics: National Economy (minimum grade C-)	3
COMM 212	Oral Communication in Business	3
MATH 221	Calculus I	3
MATH 230	Finite Mathematics with Applications	3
MATH 201/MATH 202	Introduction to Statistics I and II	6

Six Credits chosen from: 6  
 Mathematics beyond Calculus I, Biological Sciences, Chemistry, Entomology, Geology, Physical Geography, Marine Studies, Physical Science, or Plant Science.

Minimum grade C- in all of these courses:

ACCT 207	Accounting I	3
ACCT 208	Accounting II	3
BUAD 301	Introduction to Marketing	3
BUAD 306	Operations Management	3
BUAD 309	Management and Organizational Behavior	3
CISC 250	Business Telecommunication Networks	3
FINC 311	Principles of Finance	3
MISY 160	Business Computing: Tools and Concepts	3
MISY 225	Intro to Programming Business Applications	3
MISY 330	Database Design and Implementation	3
MISY 350	Web Design	3
MISY 430	Systems Analysis and Implementation	3
MISY 431	MIS Project Management	3
MISY 432	MIS Projects	3

**PROFESSIONAL CONCENTRATION 12**  
 (Minimum grade of C- in all of these courses)  
 Twelve Credits from any one area of business. Students must select ONE of the following

disciplines: Accounting, Economics, Finance, Management, Marketing, or Operations Management, and complete 12 credits of 300 and/or 400 level courses in that ONE discipline and approved by the student's academic advisor.

**MIS ELECTIVES 9**  
 (minimum grade C- in all of these courses)  
 MISY courses 300-level or above (excluding MISY courses listed above) and CISC courses 300-level or above and approved by the student's academic advisor. CISC 220: Data Structures is strongly recommended as a free elective course.

**ELECTIVES**  
 In addition to the required courses, sufficient credits must be taken to meet the minimum credits required for the degree. Elective courses should be taken outside of the Lerner College of Business & Economics (with some exceptions and exclusions; see Department for specifics). No more than two credits of HESC 120 may apply.

**CREDITS TO TOTAL A MINIMUM OF 120**

**HONORS- MANAGEMENT INFORMATION SYSTEMS (MIS) (BS)**

The recipient must complete:

1. All requirements for the Bachelor of Science degree
2. All of the University's generic requirements for Honor's Baccalaureate degree.

The Honors credits in the major will normally include MISY 160 and MISY 225. They may include required courses from other departments in the Alfred Lerner College of Business and Economics. **MINOR IN MANAGEMENT INFORMATION SYSTEMS (MIS)**

**MINOR IN MANAGEMENT INFORMATION SYSTEMS (MIS)**

The MIS Minor is designed to provide students with an opportunity to acquaint themselves with the three interrelated areas of Management Information Systems: Business Foundations, Information Technology, and Project Management/Hands on Experience, and to explore the rapidly expanding field of computer-based management information systems. Applications to be admitted into the MIS Minor are submitted on-line through UDSIS.

The minor requires the following eight courses, with a grade of C or better in 21 of the 24 credits and an overall average of C or better for all eight courses in the minor. More information and applications are available at [www.lerner.udel.edu/departments/accounting-mis/undergraduate/mis-minor](http://www.lerner.udel.edu/departments/accounting-mis/undergraduate/mis-minor).

#### CURRICULUM CREDITS

ACCT 207	Accounting I	3
BUAD 306	Operations Management	3
MISY 160	Business Computing: Tools and Concepts	3
MISY 225	Intro to Programming Business Applications	3
MISY 330	Database Design and Implementation	3
MISY 430	Systems Analysis and Implementation	3
MISY 431	MIS Project Management	3
MISY 432	MIS Projects	3

All substitutions must be approved in writing by the MIS Project Director PRIOR to taking ANY MISY course.

#### Business Administration

Telephone: (302) 831-2554  
<http://www.lerner.udel.edu/business/>  
 Faculty Listing: <http://www.lerner.udel.edu/faculty-staff/business>

Professional education in business administration serves to develop the capabilities of students so that they may assume positions of leadership and responsibility at all levels of management in our society.

Students pursuing a program of study leading to the degree of Bachelor of Science within the Department of Business Administration must select one of five majors: international business studies, management, marketing, sport management, or operations management. Honors Degree options are available in all the majors. Students may apply to the minors in management information systems, economics, or a variety of other fields. Minors in advertising, international business/international business with language are available for students majoring in marketing, management, operations management, MIS, accounting, or finance. Minors in business administration and international business studies are also available to students majoring in other fields.

Each candidate for a degree must: (1) earn a minimum of 121 credits (122 credits for sport management majors, 126 credits for international business studies majors), (2) achieve a minimum cumulative GPA of C (2.0) on all work undertaken at the University of Delaware, (3) fulfill the course requirements of the degree program, and (4) achieve at least a C- in specified business, finance, accounting, math and economics courses. Students seeking a Bachelor of Science Degree in any major within the Department of Business Administration may take only one of the four required upper-level courses in their major at another institution unless advance permission is granted for credit earned in residential study-abroad courses.

All 300- and 400-level courses are restricted to Department of Business Administration students and to those students whose programs require the courses.

#### INTERNATIONAL BUSINESS STUDIES (BS)

International Business Studies focuses on in-depth study of a region of the world with heavy emphasis on advanced language skills and international studies to accompany a strong curriculum of business and international business courses. Along with the requirements below, all International Business Studies majors must complete a fall or spring semester abroad studying in a region of the world consistent with their language of choice.

#### CURRICULUM CREDITS

##### UNIVERSITY REQUIREMENTS

ENGL 110	Critical Reading and Writing	3
(minimum grade C-)		
First Year Experience (FYE)		0-4
Breadth Requirement		12
Discovery Learning Experience (DLE)		3

##### Multi-cultural Courses 3

Three credits in an approved course or courses stressing multi-cultural, ethnic, and/or gender-related course content.

##### MAJOR REQUIREMENTS

Psychology	3
Sociology	3

Region Studies Courses: 12 credits of courses related to one region of the world consistent with the students language course from the following:  
 Six credits of approved courses from: 6

Art History, Foreign Language and Literature, History, and Philosophy.  
Six credits of approved courses from: 6  
Anthropology, Geography, Political Science and International Relations.

MATH 221 Calculus I (minimum grade C-) 3  
MATH 201/MATH 202 Introduction to Statistics I and II (minimum grade C-) 6  
COMM 212 Oral Communication in Business 3

Fifteen credits from: 15  
Foreign Languages and Literatures (Five courses in the language of choice, Chinese, French, German, Italian, Japanese, or Spanish at the 200-level and above. Of these five courses at least two must be at the 300-level and one is recommended to be a business language course, depending upon the language of choice. All International Business Studies majors must complete a fall or spring semester abroad studying in a region of the world consistent with their language of choice.)

Seven Natural and Physical Science credits including one lab credit from: 7  
Biological Sciences, Chemistry, Entomology, Geology, Marine Studies, Physics, Plant Science and Science.

ECON 151 Introduction to Microeconomics: Prices and Markets (minimum grade C-) 3  
ECON 152 Introduction to Macroeconomics: National Economy (minimum grade C-) 3  
ACCT 207 Accounting I (minimum grade C-) 3  
ACCT 208 Accounting II (minimum grade C-) 3  
ACCT 352 Law and Social Issues in Business 3  
MISY 160 Business Computing: Tools and Concepts 3  
MISY 261 Introduction to Business Information Systems 3  
FINC 311 Principles of Finance (minimum grade C-) 3

Only one of the following will count toward graduation:

MISY 261 Introduction to Business Information Systems 3

or

ACCT 302 Accounting Information Systems 3

Students must earn a grade of C- or better in all

the following courses:

BUAD 110 Basics of Business 3  
BUAD 301 Introduction to Marketing 3  
BUAD 306 Operations Management 3  
BUAD 309 Management and Organizational Behavior 3  
BUAD 384 Global Business Environment 3  
BUAD 386 International Business Management 3  
BUAD 441 Strategic Management 3  
BUAD 475 International Marketing 3  
ECON 340 International Economics 3  
FINC 415 International Finance 3

One Information Technology related course from the following: 3  
(minimum grade C-)

MISY 427 Management of Information Systems  
BUAD 477 IT Applications in Marketing

Professional Electives

ACCT, BUAD, ENTR, FINC, or MISY courses (at the 300-level or higher) 6

#### ELECTIVES

After required courses are completed, sufficient credits must be taken to meet the minimum credits required for the degree. These credits may be 100-level language courses. Elective courses should be chosen from outside the Alfred Lerner College of Business and Economics, and no more than two credits can be from HESC 120.

CREDITS TO TOTAL A MINIMUM OF 126

#### HONORS-INTERNATIONAL BUSINESS STUDIES (BS)

The recipient must complete:

1. All requirements for the Bachelor of Science degree.
2. All of the University's generic requirements for the Honors Baccalaureate degree.

The Honors credits in the major must include six credits of BUAD and/or FINC courses and six credits of the chosen language (CHIN, FREN, GRMN, ITAL, JAPN, or SPAN).

## MANAGEMENT (BS)

Business 3

Managers are essential to every organization because they work with people to make and implement decisions that move organizations forward. The Management major prepares students to be productive and insightful managers. It enhances students' leadership, communication, and analytical skills; provides strategies and models for solving problems ethically and effectively; and equips students to become managers who can make things happen in a dynamic global economy.

### CURRICULUM CREDITS

#### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing 3  
(minimum grade C-)  
First Year Experience (FYE) 0-4  
Breadth Requirement 12  
Discovery Learning Experience (DLE) 3

#### Multi-cultural Courses 3

Three credits in an approved course or courses stressing multi-cultural, ethnic, and/or gender-related course content

#### MAJOR REQUIREMENTS

Twelve Humanities credits from: 12  
Art History, History, English (except composition or similar courses), Foreign Languages (up to 6 of the allowable 9 credits may be grammar courses), Philosophy, Music (except credit for participation in instrumental and/or choral organizations), Theatre, Comparative Literature, and literature courses taught in a foreign language. No more than nine credits may be taken in one department.

Twelve Social and Behavioral Science credits from:

Psychology 3  
Sociology 3

Six credits from: 6

Anthropology, Economics (200-level or higher), Geography, Political Science and International Relations, Psychology or Sociology (except Criminal Justice). No more than six credits may be taken in one department to fulfill Social and Behavioral Science requirements.

MATH 221 Calculus I (minimum grade C-) 3  
MATH 201/MATH 202 Introduction to Statistics I  
and II (minimum grade C-) 6  
COMM 212 Oral Communication in

Seven Natural and Physical Science credits including one lab credit from: 7  
Biological Sciences, Chemistry, Entomology, Geology, Marine Studies, Physics, Plant Science and Science.

ECON 151 Introduction to Microeconomics:  
Prices and Markets (minimum  
grade C-) 3  
ECON 152 Introduction to Macroeconomics:  
National Economy (minimum  
grade C-) 3  
ACCT 207 Accounting I  
(minimum grade C-) 3  
ACCT 208 Accounting II  
(minimum grade C-) 3  
ACCT 352 Law and Social Issues in  
Business 3  
FINC 311 Principles of Finance  
(minimum grade C-) 3  
MISY 160 Business Computing: Tools and  
Concepts 3  
MISY 261 Introduction to Business  
Information Systems 3

Only one of the following will count toward graduation:

MISY 261 or ACCT 302

Students must earn a grade of C- or better in all of the following courses:

BUAD 110 Basics of Business 3  
BUAD 301 Introduction to Marketing 3  
BUAD 306 Operations Management 3  
BUAD 309 Management and Organizational  
Behavior 3  
BUAD 421 Human Resource Management 3  
BUAD 422 Designing Effective  
Organizations 3  
BUAD 441 Strategic Management 3

Three of the following seven courses: 9  
(minimum grade C- in each course)

BUAD 384 Global Business Environment  
BUAD 386 International Business  
Management  
BUAD 420 Labor Relations  
BUAD 423 Negotiation and Conflict  
Resolution  
BUAD 424 Ethics in the Workplace  
BUAD 425 Current Issues in Global  
Management  
BUAD 429 Selected Topics in Management  
BUAD 444 Small Business Management

One Information Technology related course from the following: 3

(minimum grade C-)

MISY 427 Management of Information Systems

One of the following International theme courses: 3

ACCT 395 Seminar: International Accounting  
ACCT 483 Introduction to International Accounting  
BUAD 383 Seminar on International Business  
BUAD 384 Global Business Environment  
BUAD 386 International Business Management  
BUAD 391 Seminar on International Management  
BUAD 393 Seminar on International Marketing Management  
BUAD 394 Seminar on International Operations Management  
BUAD 425 Current Issues in Global Business  
BUAD 475 International Marketing  
ECON 311 Economics of Developing Countries  
ECON 340 International Economics  
ECON 441 International Trade  
ECON 443 International Monetary Economics  
FINC 392 Seminar on International Financial Management  
FINC 415 International Finance  
MISY 395 Global Issues in Information Technology

Professional Electives

ACCT, BUAD, ENTR, FINC, or MISY courses (at the 300-level or higher) 3

### ELECTIVES

After required courses are completed, sufficient credits must be taken to meet the minimum credits required for the degree.

Elective courses should be chosen from outside the Alfred Lerner College of Business and Economics, and no more than two credits can be from HESC 120.

CREDITS TO TOTAL A MINIMUM OF 121

### MARKETING (BS)

Marketing majors learn how to gather information regarding consumers' needs

and wants and use this information to make strategic decisions regarding goods or services, pricing, promotion and distribution. The goal of marketing is to create, build and maintain mutually beneficial exchanges with consumers and/or businesses to achieve organizational objectives.

### CURRICULUM CREDITS

#### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing 3  
(minimum grade C-)

First Year Experience (FYE) 0-4

Breadth Requirement 12

Discovery Learning Experience (DLE) 3

#### Multi-cultural Courses 3

Three credits in an approved course or courses stressing multi-cultural, ethnic, and/or gender-related course content.

#### MAJOR REQUIREMENTS

Twelve Humanities credits from: 12

Art History, History, English (except composition or similar courses), Foreign Languages (up to 6 of the allowable 9 credits may be grammar courses), Philosophy, Music (except credit for participation in instrumental and/or choral organizations), Theatre, Comparative Literature, and literature courses taught in a foreign language. No more than nine credits may be taken in one department.

Twelve Social and Behavioral Science credits from:

Psychology 3

Sociology 3

Six credits from: 6

Anthropology, Economics (200-level or higher), Geography, Political Science and International Relations, Psychology or Sociology (except Criminal Justice). No more than six credits may be taken in one department to fulfill the Social and Behavioral Science requirements.

MATH 221 Calculus I (minimum grade C-) 3

MATH 201/MATH 202 Introduction to Statistics I and II (minimum grade C-) 6

COMM 212 Oral Communication in Business 3

Seven Natural and Physical Science credits including one lab credit from: 7

Biological Sciences, Chemistry, Entomology, Geology, Marine Studies, Physics, Plant Science and Science.

ECON 151	Introduction to Microeconomics: Prices and Markets (minimum grade C-) 3
ECON 152	Introduction to Macroeconomics: National Economy (minimum grade C-) 3
ACCT 207	Accounting I (minimum grade C-) 3
ACCT 208	Accounting II (minimum grade C-) 3
ACCT 352	Law and Social Issues in Business 3
FINC 311	Principles of Finance (minimum grade C-) 3
MISY 160	Business Computing: Tools and Concepts 3
MISY 261	Introduction to Business Information Systems 3

Only one of the following will count toward graduation:  
MISY 261 or ACCT 302

Students must earn a grade of C- or better in all of the following courses:

BUAD 110	Basics of Business 3
BUAD 301	Introduction to Marketing 3
BUAD 302	Marketing Research 3
BUAD 306	Operations Management 3
BUAD 309	Management and Organizational Behavior 3
BUAD 441	Strategic Management 3
BUAD 477	Information Technology Applications in Marketing 3
BUAD 479	Marketing Strategy for the Firm 3

Three of the following courses: 9  
(minimum grade C- in each course)

(must include either BUAD 471 or BUAD 473)	
BUAD 470	Sales Management and Selling
BUAD 471	Advertising Management
BUAD 472	Marketing, Society and Environment
BUAD 473	Buyer Behavior
BUAD 474	Marketing Channels and Retailing
BUAD 475	International Marketing
BUAD 478	Field Projects in Marketing

One of the following International theme courses: 3

ACCT 395	Seminar: International Accounting
ACCT 483	Introduction to International Accounting
BUAD 383	Seminar on International Business
BUAD 384	Global Business Environment

BUAD 386	International Business Management
BUAD 391	Seminar on International Management
BUAD 393	Seminar on International Marketing Management
BUAD 394	Seminar on International Operations Management
BUAD 425	Current Issues in Global Business
BUAD 475	International Marketing
ECON 311	Economics of Developing Countries
ECON 340	International Economics
ECON 441	International Trade
ECON 443	International Monetary Economics
FINC 392	Seminar on International Financial Management
FINC 415	International Finance
MISY 395	Global Issues in Information Technology

#### Professional Electives

ACCT, BUAD, ENTR, FINC, or MISY courses (at the 300-level or higher) 3

#### ELECTIVES

After required courses are completed, sufficient credits must be taken to meet the minimum credits required for the degree. Elective courses should be chosen from outside the Alfred Lerner College of Business and Economics, and no more than two credits can be from HESC 120.

CREDITS TO TOTAL A MINIMUM OF 121

#### OPERATIONS MANAGEMENT (BS)

The Operations Management (OM) Major focuses on the process by which a firm produces a product or provides a service. OM majors are concerned with addressing questions such as how much of a product to produce? What is the most efficient way to produce that amount of product or that level of service? OM is all about the transformation of raw materials, labor and capital into final products and/or services. The OM major prepares students to be effective problem solvers by increasing their ability to analyze and interpret quantitative information that they then can use to make solid business decisions.

#### CURRICULUM CREDITS

#### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing 3

(minimum grade C-)  
 First Year Experience (FYE) 0-4  
 Breadth Requirement 12  
 Discovery Learning Experience (DLE) 3  
 Multi-cultural Courses 3  
 Three credits in an approved course or courses stressing multi-cultural, ethnic, and/or gender-related course content.

**MAJOR REQUIREMENTS**

Twelve Humanities credits from: 12  
 Art History, History, English (except composition or similar courses), Foreign Languages (up to 6 of the allowable 9 credits may be grammar courses), Philosophy, Music (except credit for participation in instrumental and/or choral organizations), Theatre, Comparative Literature, and literature courses taught in a foreign language. No more than nine credits may be taken in one department.

Twelve Social and Behavioral Science credits from:  
 Psychology 3  
 Sociology 3

Six credits from: 6  
 Anthropology, Economics (200-level or higher), Geography, Political Science and International Relations, Psychology or Sociology (except Criminal Justice). No more than six credits may be taken in one department to fulfill Social and Behavioral Science requirements.

MATH 221 Calculus I (minimum grade C-) 3  
 MATH 201/MATH 202 Introduction to Statistics I and II (minimum grade C-) 6  
 COMM 212 Oral Communication in Business 3

Seven Natural and Physical Science credits including one lab credit from: 7  
 Biological Sciences, Chemistry, Entomology, Geology, Marine Studies, Physics, Plant Science and Science.

ECON 151 Introduction to Microeconomics: Prices and Markets (minimum grade C-) 3  
 ECON 152 Introduction to Macroeconomics: National Economy (minimum grade C-) 3  
 ACCT 207 Accounting I (minimum grade C-) 3  
 ACCT 208 Accounting II (minimum grade C-) 3  
 ACCT 352 Law and Social Issues in Business 3  
 FINC 311 Principles of Finance (minimum

grade C-) 3  
 MISY 160 Business Computing: Tools and Concepts 3  
 MISY 261 Introduction to Business Information Systems 3

Only one of the following will count toward graduation:  
 MISY 261 or ACCT 302

Students must earn a grade of C- or better in all of the following courses:

BUAD 110 Basics of Business 3  
 BUAD 301 Introduction to Marketing 3  
 BUAD 306 Operations Management 3  
 BUAD 309 Management and Organizational Behavior 3  
 BUAD 346 Analysis of Operations Problems 3  
 BUAD 441 Strategic Management 3  
 BUAD 446 Operations Planning and Control 3  
 BUAD 447 Quality Management 3  
 BUAD 448 Decision Support Systems for Operations 3  
 BUAD 449 Problem Structuring for Operations Decision Making 3

One of the following International theme courses: 3

ACCT 395 Seminar: International Accounting  
 ACCT 483 Introduction to International Accounting  
 BUAD 383 Seminar on International Business  
 BUAD 384 Global Business Environment  
 BUAD 386 International Business Management  
 BUAD 391 Seminar on International Management  
 BUAD 393 Seminar on International Marketing Management  
 BUAD 394 Seminar on International Operations Management  
 BUAD 425 Current Issues in Global Business  
 BUAD 475 International Marketing  
 ECON 311 Economics of Developing Countries  
 ECON 340 International Economics  
 ECON 441 International Trade  
 ECON 443 International Monetary Economics  
 FINC 392 Seminar on International Financial Management  
 FINC 415 International Finance

MISY 395 Global Issues in Information Technology

Professional Electives  
ACCT, BUAD, ENTR, FINC, or MISY courses (at the 300-level or higher) 6

#### ELECTIVES

After required courses are completed, sufficient credits must be taken to meet the minimum credits required for the degree. Elective courses should be chosen from outside the Alfred Lerner College of Business and Economics, and no more than two credits can be from HESC 120.

CREDITS TO TOTAL A MINIMUM OF 121

#### HONORS - MANAGEMENT, MARKETING, OR OPERATIONS MANAGEMENT (BS)

The recipient must complete:

1. All requirements for the Bachelor of Science (any major).
2. All of the University's generic requirements for the Honors Baccalaureate degree.

The Honors credits in the major must include at least six credits of BUAD and/or FINC courses. They may include required courses from other departments in the Alfred Lerner College of Business and Economics.

#### SPORT MANAGEMENT (BS)

The sport management program prepares students for career opportunities in the sport industry. The majority of those opportunities are in the areas of sales and marketing, leadership and management, finance, and operations. The sport management curriculum is grounded in business theory, with core courses similar to other majors in business, while still offering courses focused on sport management.

#### CURRICULUM CREDITS

##### UNIVERSITY REQUIREMENTS

Engl 110 Critical Reading and Writing 3  
minimum grade of C-  
First Year Experience (FYE) 1-3

Breadth Requirement 12

Some of a student's university requirements may be met by major requirements below. The student should consult with their advisor for

clarification.

Discovery Learning Experience (DLE) 3

#### Multi-cultural Courses 3

Three credits in an approved course or courses stressing multi-cultural, ethnic, and/or gender-related course content.

#### MAJOR REQUIREMENTS

Additional credits from Creative Arts and Humanities and/or History and Cultural Change and/or foreign language instruction. Courses must be outside the Alfred Lerner College of Business and Economics. 3

Additional credits from Social and Behavioral Sciences. Course must be outside the Alfred Lerner College of Business and Economics. 3

PYSC 100 3

SOCI XXX 3

Additional credits from Mathematics, Natural Sciences, and Technology (except 100-level MATH courses) 3

Additional Natural and Physical Science (including 1 lab credit) 4

From Biological Sciences, Chemistry, Entomology, Geology, Marine Studies, Physics, Plant Science, and Science

#### Core Courses:

ACCT 207\* Accounting I 3

ACCT 208\* Accounting II 3

BUAD 301\* Introduction to Marketing 3

BUAD 306\* Operations Management 3

BUAD 309\* Management and Organizational Behavior 3

BUAD 441\* Strategic Management 3

COMM 212 Oral Communications in Business 3

ECON 151\* Introduction to Microeconomics: Prices and Markets 3

ECON 152\* Introduction to Macroeconomics: The National Economy 3

FINC 311\* Principles of Finance 3

HESC 347\* Legal Aspects of Sport Management 3

MATH 201\* Introduction to Statistical Methods I 3

MATH 202\* Introduction to Statistical Methods II 3

MATH 221\* Calculus I 3

MISY 160\* Business Computing: Tools and Concepts 3

MISY 261\* Business Information Systems 3  
 Only one of the following will count toward graduation:  
 MISY 261 or ACCT 302

\* Courses with an asterisk require a minimum grade of C-

Courses in Major:

HESC 202\* Foundations of Sport Management 3  
 HESC 302\* Practicum in Sport Management 1  
 HESC 344\* Financial Aspects of Sport Management 3  
 HESC 423\* International Sport Management 3  
 HESC 437\* Sport Marketing 3  
 HESC 439\* Ethics and Issues in Sport Management 3  
 HESC 464\* Internship 9  
 HESC elective 3

\* Courses with an asterisk require a minimum grade of C-

In addition to required courses, sufficient credits must be taken to meet the minimum credits required for the degree. Elective courses should be chosen from outside the Alfred Lerner College of Business and Economics. For Economics, International Business, or Management Information/Decision Support Systems minors only, six credits from the Alfred Lerner College of Business and Economics may be applied to the elective category. No more than two credits can be from HESC 120.

CREDITS TO TOTAL A MINIMUM OF 122

MINOR IN ADVERTISING

The minor in advertising is designed to give students from any major an increased understanding of the concepts of marketing, economics, mass communication, and public relations, as well as the strategies and tactics of advertising management. In addition, students will gain familiarity with the rapidly changing digital media landscape and examine some of the social and cultural issues inherent in the new media and technologies. The minor is awarded only to students who have applied and been admitted to the program. Admission will be based on the availability of seats and the GPA of the student; a minimum cumulative GPA of 2.7 will be required for consideration. Students must have completed 28 credits at the University

of Delaware prior to application. Applications are reviewed each September and February. The credits required for the minor may also be used to meet other distribution requirements, such as degree breadth requirements and professional electives. Also, students with a minor in Business Administration qualify to apply for the minor.

Majors outside the Lerner College of Business & Economics must earn a grade of C- or better in all the following courses:

Marketing and Economics Courses:

BUAD 301 Introduction to Marketing 3  
 BUAD 471 Advertising Management 3  
 BUAD 473 Buyer Behavior 3  
 ECON 100 Economic Issues and Policies 3  
 or  
 ECON 152 Introduction to Microeconomics:  
 The National Economy 3

Art Course:

ART 204 Media/Design/Culture 3

Communication Courses: 6

Six credits from:

COMM 245 Mass Communication and Culture  
 COMM 309 Introduction to Public Relations  
 COMM 313 Communication Principles in Advertising  
 COMM 325 Studio Television Production  
 COMM 486 Multimedia Literacy

Total Credits: 21

Majors in the Lerner College of Business & Economics must earn a grade of C- or better in all the following courses:

Marketing Courses:

BUAD 301 Introduction to Marketing 3  
 BUAD 471 Advertising Management 3  
 BUAD 473 Buyer Behavior 3

Art Course:

ART 204 Media/Design/Culture 3

Communication Courses:

COMM 245 Mass Communication and Culture 3  
 COMM 486 Multimedia Literacy 3  
 Three credits from: 3  
 COMM 309 Introduction to Public Relations  
 COMM 313 Communication Principles in Advertising

COMM 325 Studio Television Production

Total Credits 21

#### MINOR IN BUSINESS ADMINISTRATION

The minor in Business Administration provides students in degree programs in Economics and those outside the Lerner College of Business and Economics with an opportunity to acquaint themselves with the basic concepts of business administration. Completion of the requirements for the minor provides a basic understanding of the language and major functional areas of business. The minor is awarded only to students who have applied and been admitted to the program. Admission will be based on the availability of seats and the GPA of the student; a minimum cumulative GPA of 2.7 will be required for consideration. Students must have completed 28 credits at the University of Delaware prior to application. Applications are reviewed each September and February. The credits required for the minor may also be used to meet other distribution requirements, such as degree breadth requirements and professional electives. Students seeking a minor in Business Administration may only take one of the required Business or Finance courses at another AACSB institution.

Majors outside the Lerner College of Business and Economics must earn a grade of C- or better in all the following courses:

ACCT 200	Survey of Accounting	4
BUAD 301	Introduction to Marketing	3
BUAD 306	Operations Management	3
BUAD 309	Management and Organizational Behavior	3
ECON 100	Economic Issues and Policies	3
FINC 200	Fundamentals of Finance	3
MATH 201	Introduction to Statistical Methods I	3

CREDITSTOTOTAL A MINIMUM OF 22

Majors in the Economics degree program must earn a grade of C- or better in all the following courses:

ACCT 207	Accounting I	3
ACCT 208	Accounting II	3
BUAD 301	Introduction to Marketing	3
BUAD 306	Operations Management	3
BUAD 309	Management and Organizational Behavior	3

FINC 311 Fundamentals of Finance 3

CREDITSTOTOTAL A MINIMUM OF 18

#### MINOR IN INTERNATIONAL BUSINESS/ INTERNATIONAL BUSINESS WITH LANGUAGE

The minor in international business is designed to give increased understanding of the important international dimension of business to students with a major in accounting, finance, hotel, restaurant, and institutional management, management, management information systems, marketing, operations management or sport management. The minor is awarded only to students who have applied and been admitted to the program. Admission will be based on the availability of seats and the GPA of the student; a minimum cumulative GPA of 2.7 will be required for consideration. Students must have completed 28 credits at the University of Delaware prior to application. Applications are reviewed each September and February. The 18 credits required for the minor may also be used to meet other distribution requirements, such as the University Discovery Learning Experience, degree breadth requirements, and professional electives. Also, students with a minor in business administration qualify to apply for the minor. Students electing the International Business minor are encouraged to incorporate a short-term study abroad program into their course of study.

International Business and Economics Courses:  
9

Nine credits must be passed with a minimum grade of C- from the following courses:

ACCT 395	Seminar International Accounting
BUAD 384	Global Business Environment
BUAD 386	International Business Management
BUAD 391	Seminar on International Business
BUAD 393	Seminar on International Management
BUAD 394	Seminar on International Operations Management
BUAD 425	Current Issues in Global Management
BUAD 475	International Marketing
ECON 340	International Economic Relations
FINC 392	Seminar on International Financial Management
FINC 415	Finance Seminar: International Finance

ACCT 395, BUAD 384, BUAD 391, BUAD 393 and BUAD 394, and FINC 392 are taught abroad.

Students seeking a minor in International Business may take only one of the required Alfred Lerner College of Business and Economics courses at another institution unless advance permission is granted for credit earned in residential study-abroad courses.

International and Region Studies Courses 9  
Students must also take nine credits from an approved list of supporting courses in many departments. Included are all foreign language courses at the intermediate level or above and courses that emphasize current international issues or provide background for understanding other countries or cultures. No more than one course can be taken in a single department. This list is maintained by the Department of Business Administration. Pass/Fail courses will not be counted.

The minor in international business with language requires completion of the 18 credits required for the minor in international business plus completion of at least two courses at the 200-level taught in the language of choice for a total of 24 credits. The languages available are Arabic, Chinese, French, German, Italian, Japanese, Russian, or Spanish. Students selecting the International Business Minor with Language may count one language course as part of the nine credits in International and Region Studies Courses. Students are encouraged to incorporate a short-term study abroad program into their course of study, especially a Foreign Languages and Literatures program to a country that uses the student's target language; however, only courses taught in the language of choice count toward the minor.

#### MINOR IN INTERNATIONAL BUSINESS STUDIES

The minor in International Business Studies is designed for students who may be interested in language and business, but who are not majoring in a business area. The minor is restricted to students pursuing a major in Economics or any major outside the Lerner College of Business and Economics. Other Lerner College students who desire an international business minor must pursue the Minor in International Business or Minor in International Business with Language options. Admission will be based on the availability of seats and the GPA of the student; a minimum cumulative GPA of

2.7 will be required for consideration. Students must have completed 28 credits at the University of Delaware prior to application. Applications are reviewed each September and February. Students electing the International Business Studies minor are encouraged to incorporate a short-term study abroad program into their courses of study, especially a Foreign Languages and Literatures trip to a country that uses the student's target language; however, only courses taught in the language of choice count toward the minor. The 21 credits required for the minor may also be used to meet other distribution requirements.

Students must earn a grade of C- or better in all courses taken for the minor.

#### Required Courses:

Core Business Courses 6 Credits

BUAD 100 Introduction to Business 3

One of the following: 3

ECON 152 Introduction to Macroeconomics:  
The National Economy or

FINC 200 Fundamentals of Finance

(Students taking ECON 152 are required to take ECON 151 as a prerequisite.)

International Business Courses 9 Credits

BUAD 384 Global Business Environment 3

BUAD 386 International Business  
Management 3

One of the following: 3

BUAD 425 Current Issues in Global Business

BUAD 475 International Marketing

ECON 340 International Economics

FINC 415 International Finance

(Students taking FINC 415 are required to take ECON 302 as a prerequisite.)

Foreign Language Courses 6

Foreign Languages and Literatures (Two courses at the 200-level or above, taught in the language of choice: Arabic, Chinese, French, German, Italian, Japanese, Russian, or Spanish.)

CREDITS TO TOTAL A MINIMUM OF 21

#### Economics

Telephone: (302) 831-2565

<http://www.lerner.udel.edu/economics>

Faculty Listing:

<http://www.lerner.udel.edu/faculty-staff/economics>

Economists study how markets work in order to determine what is produced, how it is produced, and how income is distributed. Among the many topics studied in economics are such things as the role and impact of international trade, the impact of monopoly on the economy, and the problems of unemployment and inflation. An understanding of economic principles is critical to success in business and to the design of effective government policy.

The Department of Economics offers a Bachelor of Science and a Bachelor of Arts degree in Economics and a Bachelor of Arts degree in Economics Education. In addition, a B.S. degree in Economics and Mathematics is available through the Department of Mathematics in the College of Arts and Sciences. A minor in Economics is also available.

Honors degree options are available for all programs. Optional concentrations in Applied Economics and in Economic Theory and Econometrics are available to students in all programs. Students may also declare interdepartmental majors. Requirements for all programs are listed below.

#### APPLICATION FOR MAJOR

Any University student who is not an Economics major but wishes to become one must apply for admission into the major. Applications may be submitted online through the student's UDSIS account. The principal criteria for acceptance are academic achievement, particularly in Economics courses, and potential for academic success in Economics. Students seeking admission to an Economics degree program must complete at least 28 credit hours at the University of Delaware, including ECON 151 and ECON 152, (each with a grade of C- or better) prior to submitting an application. In addition, students applying for the B.S. degree must complete either MATH 221 or MATH 241 with a grade of C- or better.

#### ECONOMICS (BS)

##### CURRICULUM CREDITS

##### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing 3  
(minimum grade C-)  
First Year Experience (FYE) 0-4  
Breadth Requirement 12  
Discovery Learning Experience (DLE) 3  
Multi-cultural Courses 3

Three credits in an approved course or courses stressing multi-cultural, ethnic, and/or gender-related course content

#### MAJOR REQUIREMENTS

Second Writing Requirement: (minimum grade C-) 3

A writing course involving significant writing experience including two papers with a combined minimum of 3,000 words to be submitted for extended faculty critique of both composition and content. This course must be taken after completion of 60 credit hours. See second writing courses.

One of the following: (minimum grade C-) 3-4  
MATH 221 Calculus I  
or  
MATH 241 Analytic Geometry and Calculus A

Quantitative Proficiency Requirement: (minimum grade C-) 9

An additional nine credits of course work in the quantitative area. At least three credits in addition to MATH 221 or MATH 241 must be taken in Mathematics at or above the 200-level except MATH 201, MATH 202, MATH 205, MATH 250, MATH 251, MATH 252, and MATH 253. The remaining six credits may be chosen from other Mathematics courses at or above the 200-level (except MATH 201, MATH 202, MATH 205, MATH 250, MATH 251, MATH 252, and MATH 253), ACCT 208, Statistics and Computer Science courses at or above the 300-level, BUAD 306, BUAD 346, and BUAD 446, MISY 261, MISY 430, and MISY 431, and ECON 415, ECON 422, ECON 423, and ECON 426. A maximum of one economics course may be used to satisfy this requirement while simultaneously being used to satisfy Economics course requirements.

#### BREADTH REQUIREMENTS (See Description)

Group A 9

Understanding and appreciation of the creative arts and humanities. Nine credits representing at least two departments.

Group B 9

The study of culture and institutions over time. Nine credits representing at least two departments.

Group C 3

Empirically-based study of human beings and their environment. Cannot be satisfied by an Economics course.

**Group D 4**

The study of natural phenomena through experiment and analysis. This course must have an associated laboratory.

**MATH 201/MATH 202 Introduction to Statistics I and II: (minimum grade C-) 6**

**Related Work Requirement 9**

Nine credits chosen from any 300-level or higher courses in Accounting, Anthropology, Business Administration, Computer Science, Finance, Geography, History, Mathematics, Philosophy, Political Science, Psychology, Sociology, and Statistics. Also acceptable are ACCT 207, ACCT 208, any 200-level Mathematics course except MATH 201, MATH 202, MATH 205, MATH 250, MATH 251, MATH 252, and MATH 253, and any MISY courses. Courses used to satisfy the Related Work Requirement may not be used to fulfill the quantitative proficiency requirement described above.

**ECON 151 Introduction to Microeconomics: Prices and Markets (minimum grade C-) 3**

**ECON 152 Introduction to Macroeconomics: National Economy (minimum grade C-) 3**

**ECON 301 Quantitative Microeconomic Theory (minimum grade C-) 3**

**ECON 303 Intermediate Macroeconomic Theory (minimum grade C-) 3**

Six additional Economics courses at or above the 300 level, at least two of which are at or above the 400-level. At least one of the 400 level Economics electives must be chosen from courses other than ECON 415, ECON 422, or ECON 423: (minimum grade C-) 18

Credit will not be allowed for both courses of any of the following sets of corresponding courses: ECON 251, ECON 300, and ECON 301; ECON 332 and ECON 433, ECON 344 and ECON 444; ECON 360 and ECON 463, ECON 381 and ECON 483, and ECON 390 and ECON 490.

**ELECTIVES**

After required courses are completed, sufficient credits must be taken to meet the minimum credits required for the degree. No more than three credits can be from HESC 120.

**CREDITS TO TOTAL A MINIMUM OF 120**

**ECONOMICS (BA)**

**CURRICULUM CREDITS**

**UNIVERSITY REQUIREMENTS**

**ENGL 110 Critical Reading and Writing 3**  
(minimum grade C-)

**First Year Experience (FYE) 0-4**

**Breadth Requirement 12**

**Discovery Learning Experience (DLE) 3**

**Multi-cultural Courses 3**

Three credits in an approved course or courses stressing multi-cultural, ethnic, and/or gender-related course content

**MAJOR REQUIREMENTS**

**Second Writing Requirement: (minimum grade C-) 3**

A writing course involving significant writing experience including two papers with a combined minimum of 3,000 words to be submitted for extended faculty critique of both composition and content. This course must be taken after completion of 60 credit hours. See approved second writing courses.

Completion of the intermediate-level course (107 or 112) in a given foreign language. Students with four or more years of high school work in a single foreign language may attempt to fulfill the requirement in that language by taking an exemption examination 0-12.

**One of the following: (minimum grade C-) 3-4**

**MATH 114 College Mathematics and Statistics (for students who do not intend to continue the study of mathematics)**

**MATH 115 Pre-Calculus (for students who intend to continue the study of mathematics)**

**MATH 221 Calculus I**

**MATH 241 Analytic Geometry and Calculus A**

**BREADTH REQUIREMENTS (See Description)**

**Group A 9**

Understanding and appreciation of the creative arts and humanities. Nine credits representing at least two areas.

**Group B 9**

The study of culture and institutions over time. Nine credits representing at least two areas.

**Group C 3**

Empirically-based study of human beings and their environment. Cannot be satisfied by an

Economics course.

Group D 7

The study of natural phenomena through experiment and analysis. At least one course must have an associated laboratory.

ECON 151 Introduction to Microeconomics: Prices and Markets (minimum grade C-) 3

ECON 152 Introduction to Macroeconomics: National Economy (minimum grade C-) 3

ECON 303 Intermediate Macroeconomic Theory (minimum grade C-) 3

ECON 300 Intermediate Microeconomic Theory

or

ECON 301 Quantitative Microeconomic Theory (minimum grade C-) 3

Additional Economics Courses 18

Six additional Economics courses at or above the 300-level, at least two of which are at or above the 400-level. At least one of the 400 level Economics electives must be chosen from courses other than ECON 415, ECON 422, or ECON 423: (minimum grade C-)

Credit will not be allowed for both courses of any of the following sets of corresponding courses: ECON 251, ECON 300 and, ECON 301, ECON 332 and ECON 433, ECON 344 and ECON 444, ECON 360 and ECON 463, ECON 381 and ECON 483, and ECON 390 and ECON 490.

MATH 201/MATH 202 Introduction to Statistics I and II: (minimum grade C-) 6

Related Work Requirement 9

Nine credits chosen from any 300-level or higher courses in Accounting, Anthropology, Business Administration, Computer Science, Finance, Geography, History, Mathematics, Philosophy, Political Science, Psychology, Sociology, and Statistics. Also acceptable are ACCT 207, ACCT 208, any 200-level Mathematics except MATH 201, MATH 202, MATH 205, MATH 250, MATH 251, MATH 252, MATH 253, and any MISY courses.

## ELECTIVES

After required courses are completed, sufficient credits must be taken to meet the minimum

credits required for the degree. No more than three credits can be from HESC 120.

CREDITS TOTOTAL A MINIMUM OF 120

## ECONOMICS (APPLIED ECONOMICS) (BA/BS)

The requirements for the major in Economics must be met. The following requirements must be met in place of the requirement for six economics courses, with at least two at the 400-level, and the quantitative proficiency requirements for the regular B.A. or B.S. degree: (minimum of C- in all required concentration courses)

ECON 422/ECON 423 Econometric Methods and Models I and II 6

or

ECON 822/ECON 823 Econometric Theory I/ Seminar in Econometrics

Three Economics courses at the 300- or 400-level 9

Two Economics courses at the 400-level or higher (but not ECON 426, ECON 801, ECON 802, ECON 811, or ECON 812) 6

Twelve credits of course work in the quantitative area, including the following 12

MISY 261 Introduction to Business Information Systems II (prerequisite MISY 160)

Six credits in MATH at or above the 200-level (except MATH 201, MATH 202, MATH 205, MATH 250, MATH 251, MATH 252, and MATH 253).

Any one of the following: ACCT 208, BUAD 306, BUAD 346, BUAD 446, MISY 430, MISY 431, ECON 415, ECON 422, ECON 423, ECON 426, MATH 300, CISC courses at or above the 300-level.

## ECONOMICS (ECONOMIC THEORY AND ECONOMETRICS) (BA/BS)

The requirements for the major in Economics must be met. The following requirements must be met in place of the requirement for six economics courses, with at least two at the 400-level, and the quantitative proficiency requirements for the regular B.A. or B.S. degree (minimum of C- in all required concentration courses):

ECON 422/ECON 423 Econometric Methods and Models I and II 6  
 or  
 ECON 822/ECON 823 Econometric Theory I/ Seminar in Econometrics

Four Economics courses at the 300- or 400-level 12

Two additional 400-level courses in economic theory, chosen from ECON 406, ECON 426, ECON 430, ECON 441, ECON 443, ECON 463, or graduate level courses in economic theory by approval. A mathematics course at the 300-level or above may be substituted for one of the 400-level courses in economic theory.

Twelve credits of course work in the quantitative area, including the following 12  
 MISY 261 Introduction to Business Information Systems (prerequisite MISY 160)

Six credits in MATH at or above the 200-level (except MATH 201, MATH 202, MATH 205, MATH 250, MATH 251, MATH 252, and MATH 253).

Any one of the following: ACCT 208, BUAD 306, BUAD 346, BUAD 446, MISY 430, MISY 431, ECON 415, ECON 422, ECON 423, ECON 426, STAT courses at or above the 300-level, CISC courses at or above the 300-level.

## ECONOMICS EDUCATION (BA)

### CURRICULUM CREDITS

#### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing 3  
 (minimum grade C-)  
 First Year Experience (FYE) 3  
 University Breadth Requirement 12  
 Discovery Learning Experience (DLE) 0-4  
 Multi-cultural Course 3

#### MAJOR REQUIREMENTS

Second Writing Requirement:  
 (minimum grade C-) 3  
 A writing course involving significant writing experience including two papers with a combined minimum of 3,000 words to be submitted for extended faculty critique of both composition and content. This course must be taken after completion of 60 credit hours. See approved second writing courses.

Completion of the intermediate-level course (107

or 112) in a given foreign language. Students with four or more years of high school work in a single foreign language may attempt to fulfill the requirement in that language by taking an exemption examination 0-12.

One of the following: (minimum grade C-) 3-4  
 MATH 114 College Mathematics and Statistics (for students who do not intend to continue the study of mathematics)  
 MATH 115 Pre-Calculus (for students who intend to continue the study of mathematics)  
 MATH 221 Calculus I  
 MATH 241 Analytic Geometry and Calculus A

#### BREADTH REQUIREMENTS (See Description)

Group A 9  
 Understanding and appreciation of the creative arts and humanities. Nine credits representing at least two areas. Can select courses that may simultaneously fulfill additional non-business requirements below.

Group B 9  
 The study of culture and institutions over time. Nine credits representing at least two areas. Can select courses that may simultaneously fulfill additional non-business requirements below.

Group C 3  
 Empirically-based study of human beings and their environment. Cannot be satisfied by an Economics course.

Group D 7  
 The study of natural phenomena through experiment and analysis. At least one course must have an associated laboratory.

Minimum C- in all required ECON courses.  
 ECON 151 Introductory Microeconomics: Prices and Markets 3  
 ECON 152 Introductory Macroeconomics: National Economy 3  
 ECON 300 Intermediate Microeconomic Theory 3  
 or  
 ECON 301 Quantitative Microeconomic Theory 3  
 ECON 303 Intermediate Macroeconomic Theory 3

Six Economics courses, at least two of which are at or above the 400 level 18

POSC 150	The American Political System	3
GEOG 120	World Regional Geography	3
HIST 104	World History II	3
HIST 206	United States History since 1865	3

Additional credits as follows 15  
6 credits in POSC, 6 credits in GEOG, 3 credits in HIST

EDUC 413	Adolescent Development and Educational Psychology	4
EDUC 414	Teaching Exceptional Adolescents	3
EDUC 419	Diversity in Secondary Education	3
HIST 491	Planning a Course of Instruction	3
HIST 493	Seminar: Problems in Teaching History and Social Sciences	3
EDUC 420	Reading in the Content Areas	1
EDUC 400	Student Teaching	9

Grade of C- or better required in all required major, major related, and professional studies courses.

To be eligible to student teach, Economics Education students must have a GPA of 3.0 in their major and an overall GPA of 2.75. They must also pass a teacher competency test as established by the University Council on Teacher Education. Students must consult with the teacher education program coordinator to obtain the student teaching application and other information concerning student teaching policies.

After required courses are completed, sufficient credits must be taken to meet the minimum credits required for the degree. No more than three credits can be from HESC 120.  
CREDITS TOTOTAL A MINIMUM OF 120

## HONORS PROGRAMS

### HONORS -ECONOMICS OR ECONOMICS EDUCATION HONORS BACHELOR OF SCIENCE: ECONOMICS (BA)

The recipient must complete:

1. All requirements for the Bachelor of Arts or Bachelor of Science in Economics in the Alfred Lerner College of Business and Economics.
2. All of the University's generic requirements for the Honors Baccalaureate degree.

The courses in Intermediate Microeconomic Theory and Intermediate Macroeconomic Theory must be taken in Honors sections.

Courses in Economics at the 600-level or higher may be considered as Honors courses.

## MINOR IN ECONOMICS

The minor in Economics provides students in other degree programs an opportunity to study the basic concepts and methodology in Economics and to gain formal recognition for their efforts.

### REQUIRED COURSES IN MINOR:

Six courses (18 credits) with a grade of C- or better, including ECON 151, ECON 152; one of the following four courses: ECON 251, ECON 300, ECON 301, or ECON 303; and three additional courses at or above the 300-level. NOTE: credit can only be received for one of ECON 251, ECON 300 or ECON 301.

### APPLICATION FOR MINOR:

Same as application for major.

## INTERDEPARTMENTAL MAJOR IN ECONOMICS

The interdepartmental major consists of 51 credit hours selected from related fields with a minimum of 21 credit hours selected from each major field. In general, the Economics Department requires that the 21 hours of economics include ECON 151, ECON 152, ECON 300 or ECON 301, and ECON 303. Before considering an interdepartmental major program, the student should strongly consider the option of a major in one field and a minor in the other.

Students wishing to explore the possibility of developing an interdepartmental major with other departments should arrange conferences with their faculty advisors and the appropriate department chairs to plan their programs. Approval of the program is also required by the assistant dean of the college or colleges in which the student is registered.

Contact the Office of Undergraduate Advising and Academic Services in 102 Purnell for more information.

## Finance

Telephone: (302) 831-1015

<http://www.lerner.udel.edu/finance>

Faculty listing: <http://www.lerner.udel.edu/faculty-staff/finance>

Professional education in finance serves to develop the capabilities of students so that they may assume positions of leadership and responsibility at all levels of financial management in our society. The undergraduate degree program in Finance reflects the growing demand for greater financial management capability in banking and in the financial services related industries. An Honors Degree option is available. Students majoring in Finance may also pursue a minor in International Business and/or apply to the minors in Advertising, Entrepreneurial Studies, Management Information Systems and Economics as well as minors offered outside of the Lerner College.

To earn the major in Finance, one must: (1) earn a minimum of 121 credits, (2) achieve a minimum cumulative GPA of C (2.0) on all work undertaken at the University of Delaware, (3) fulfill the course requirements of the major, and (4) achieve at least a C- in specified business, finance, accounting, and economics courses. Only one of the five required upper-level courses in Finance may be taken at another AACSB institution, unless advance permission is granted.

Students also take a broad range of courses throughout the University that are outside the Alfred Lerner College of Business and Economics. These include a specified number of courses in the humanities, sciences, social and behavioral sciences, and in disciplines that develop specific skills in mathematics, statistics, and written and oral communication. The math and statistics courses require a grade of C- or better. Additional electives are also required to give each student the opportunity to choose courses most consistent with his or her interests.

## FINANCE (BS)

### CURRICULUM CREDITS

#### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing (minimum grade C-) 3

First Year Experience (FYE) 0-4

Discovery Learning Experience (DLE) 3

Breadth Requirements 12

### Multi-cultural Courses 3

Three credits in an approved course or courses stressing multi-cultural, ethnic, and/or gender-related course content

### MAJOR REQUIREMENTS

Twelve Humanities credits from: 12

Art History, History, English (except composition or similar courses), Foreign Languages (up to 6 of the allowable 9 credits may be grammar courses), Philosophy, Music (except credit for participation in instrumental and/or choral organizations), Theatre, Comparative Literature, and literature courses in a foreign language.

No more than nine credits may be taken in one department.

Nine Social and Behavioral Science credits from:

Economics (ECON 251, or 300-level or higher, excluding ECON 302) 3

Six credits from: 6

Anthropology, Economics (ECON 251 or 300-level or higher, excluding ECON 302), Geography, Political Science and International Relations, Psychology or Sociology (except Criminal Justice), Black American Studies (except courses that qualify as under Humanities), or Women's Studies (except courses that qualify as under Humanities). No more than six credits may be taken in one department to fulfill Social and Behavioral Science requirements.

COMM 212 Oral Communication in Business (It is advised that COMM 212 be taken in the sophomore year.) 3

MATH 221 Calculus I (minimum grade C-) 3

MATH 230 Finite Mathematics with Applications (minimum grade C-) 3

MATH 201/MATH 202 Introduction to Statistics I and II (minimum grade C-) 6

One of the following courses: 3

ENGL 301 Expository Writing

ENGL 312 Written Communication in Business

ENGL 410 Technical Writing

ENGL 415 Writing in the Professions

Seven Natural and Physical Science credits including one lab credit from: 7

Biological Sciences (BISC), Chemistry (CHEM), Entomology (ENWC), Geology (GEOL), Marine Studies (MAST), Physics (PHYS), Plant Science

(PLSC), and Science (SCEN), ANTH 102, ANTH 104, ANTH 202, NTDT 200, GEOG 106, GEOG 101 with 111, GEOG 152 and GEOG 220.

ECON 151	Introduction to Microeconomics: Prices and Markets (minimum grade C-)	3
ECON 152	Introduction to Macroeconomics: National Economy (minimum grade C-)	3
ECON 302	Banking and Monetary Policy	3
ACCT 207	Accounting I (minimum grade C-)	3
ACCT 208	Accounting II (minimum grade C-)	3
ACCT 352	Law and Social Issues in Business	3
BUAD 301	Introduction to Marketing (minimum grade C-)	3
BUAD 306	Operations Management (minimum grade C-)	3
BUAD 309	Management and Organizational Behavior (minimum grade C-)	3
BUAD 441	Strategic Management (minimum grade C-)	3
MISY 160	Business Computing: Tools and Concepts	3
MISY 261	Business Information Systems	3

Only one of the following will count toward graduation:  
MISY 261 or ACCT 302

Students must earn a grade of C- or better in all but one of the following: FINC 312, FINC 313, FINC 314, FINC 412, FINC 413, FINC 414, FINC 415, FINC 416, FINC 417, FINC 418, FINC 419.

FINC 311	Principles of Finance (minimum grade C-)	3
FINC 312	Intermediate Financial Management	3
FINC 314	Investments	3

Three of the following eight courses: 9

FINC 313	Financial Markets	
FINC 412	Financial Institutions	
FINC 413	Advanced Corporate Finance	
FINC 414	Bank Management	
FINC 415	International Finance	
FINC 416	Advanced Investments	
FINC 417	Real Estate Finance	
FINC 418	Seminar: Corporate Governance	
FINC 419	Financial Modeling and Valuation	

Professional Electives

3 credits from ACCT, BUAD, ENTR, FINC or MISY (300-level or higher)  
(ACCT 302, 350 and 351 may not apply) 3

## ELECTIVES

After required courses are completed, sufficient credits must be taken to meet the minimum credits required for the degree. Electives should be taken from courses outside the Alfred Lerner College of Business and Economics (with some exceptions and exclusions; see Department for specifics). No more than two credits from HESC 120 may apply.

CREDITS TO TOTAL A MINIMUM OF 121

## HONORS- FINANCE (BS)

The recipient must complete:

1. All requirements for the Bachelor of Science in Finance.
2. All of the University's generic requirements for the Honors Baccalaureate degree.

The Honors credits in the major must include at least six credits in BUAD and/or FINC courses. They may include required courses from other departments in the Lerner College.

## Hotel, Restaurant and Institutional Management

Telephone: (302) 831-6077

<http://www.lerner.udel.edu/departments/HRIM>

Faculty Listing: <http://www.lerner.udel.edu/faculty-staff/hrim>

The Hotel, Restaurant and Institutional Management curriculum leads to a Bachelor of Science Degree (including an Honors Degree option) and is based in liberal arts, business and specialized courses in technical applications for the hotel and restaurant industries. Students are provided a foundation in the traditional academic areas to complement the state-of-the-art business and hospitality courses. The curriculum is structured to provide both a practical and a theoretical education. An integral part of the curriculum is the hospitality-related work experience. A documented student work and community service requirement of 800 hours is required prior to graduation. These combined work experiences assist in the preparation of students for the increasingly complex and challenging hospitality industry.

Students in the Hotel, Restaurant and Institutional Management program also have the opportunity to participate in a 4+1+1 MBA

program. With careful planning, academically eligible students can complete both their undergraduate degree in Hotel, Restaurant and Institutional Management and the Master of Business Administration degree in five years of academic study plus a 12 month internship.

### BREADTH REQUIREMENTS

The following courses have been approved to fulfill humanities and science electives for students majoring in Hotel, Restaurant and Institutional Management.

#### Humanities

Art, Art History, Communication, Comparative Literature, English, Foreign Language (including: ARAB, CHIN, FREN, GREK, GRMN, HEBR, ITAL, JAPN, LATN, PORT, RUSS, SPAN), Foreign Languages and Literatures, Jewish Studies, Linguistics, Museum Studies, Music, Philosophy, Theater, Women's Studies (WOMS 203, WOMS 205, WOMS 210, WOMS 216, WOMS 222, WOMS 318, WOMS 320, WOMS 326, WOMS 328, WOMS 330, WOMS 353, WOMS 380, WOMS 381, WOMS 382, WOMS 389, WOMS 465, WOMS 480).

#### Sciences

Physical and Biological: Anthropology (ANTH 102, ANTH 104, ANTH 202), Biological Sciences, Animal Science, Chemistry, Entomology, Food Science, Geological Sciences, Marine Studies, Plant and Soil Science, Physics and Astronomy, Psychology (PSYC 314), Science.

Natural: Geography (GEOG 101, GEOG 152, GEOG 220, GEOG 230, GEOG 235, GEOG 236, GEOG 250, GEOG 255, GEOG 320), Mathematics, Statistics (including PSYC 209), Computer and Information Science.

### HOTEL, RESTAURANT AND INSTITUTIONAL MANAGEMENT (BS)

#### CURRICULUM CREDITS

#### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing 3  
(minimum grade C-)  
First Year Experience (FYE) 0-4  
Breadth Requirement 12  
Discovery Learning Experience (DLE) 3

#### Multi-cultural Courses 3

Three credits in an approved course or courses stressing multi-cultural, ethnic, and/or gender-related course content

### MAJOR REQUIREMENTS

COMM 212	Oral Communication in Business	3
ENGL 312	Written Communications in Business	3
	Foreign Language elective	3/4
	Humanities elective from above	3
MATH 114	College Mathematics and Statistics (designed for students who do not intend to continue the study of mathematics)	
or		
MATH 115	Pre-Calculus (designed for students who intend to continue the study of mathematics)	3
or		
	Successful performance on the proficiency test in mathematics administered by the Department of Mathematical Sciences.	
STAT 200	Basic Statistical Practice	
or		
MATH 201	Introduction to Statistical Methods	3
NTDT 200	Nutrition Concepts (minimum grade C-)	3
	Science electives	6
PSYC 100	General Psychology	3
ECON 151/ECON 152	Introduction to Microeconomics/Macroeconomics	6
	Sociology Elective (following course recommended):	3
SOCI 201	Introduction to Sociology	
ACCT 207	Accounting I	3
BUAD 301	Introduction to Marketing	3
BUAD 309	Management and Organizational Behavior	3
FINC 311	Principles of Finance	3
HRIM 180	Introduction to Hospitality	3
HRIM 187	Introduction to Hospitality Information Management	3
HRIM 201	Food Principles	3
HRIM 211	Food Principles Laboratory	1
HRIM 218	Beverage Management	3
HRIM 321	Quantity Food Service Management	1
HRIM 325	Laboratory in Quantity Food Service Management	2
HRIM 327	Property Engineering	3
HRIM 380	Management of Lodging	

	Operations	3
HRIM 381	Management of Food and Beverage Operations	3
HRIM 382	Managerial Accounting and Finance in the Hospitality Industry	3
HRIM 480	Human Resources Management in the Hospitality Industry	3
HRIM 481	Marketing in the Hospitality Industry	3
HRIM 482	Law of Innkeeping	3
HRIM 450	Managing Hospitality Information Systems	3
HRIM 488	HRIM Practicum I	4
HRIM 489	HRIM Practicum II	6

All HRIM courses require a minimum grade of C-.

The HRIM program requires 700 or more hours of approved industry work experience and an additional 100 hours of approved community service activities prior to graduation.

#### ELECTIVES

In addition, sufficient elective credits must be taken to meet the minimum credits required for the degree.

May include Military Science, Music, or Physical Education. (Only two credits of activity-type Physical Education and four credits of Music ensemble and four credits of 100- and 200-level courses in Military Science/Air Force may be counted toward the degree.) Students are encouraged to develop fluency in a second language.

CREDITS TO TOTAL A MINIMUM OF 120

#### HONORS- HOTEL, RESTAURANT AND INSTITUTIONAL MANAGEMENT (BS)

The recipient must complete:

1. All requirements for the Bachelor of Science degree in Hotel, Restaurant and Institutional Management.
2. All the University's generic requirements for the Honors Degree.

# College of Earth, Ocean, and Environment

## College of Earth, Ocean, and Environment

The College of Earth, Ocean, and Environment (CEOE) is dedicated to advancing the understanding of Earth's natural systems and the interactions of humans with the environment through engaged interdisciplinary research, teaching, and outreach. The college's goal is to produce well-rounded scientists, researchers and policy specialists who have the broad vision and interdisciplinary background necessary to address the sweeping, interrelated issues that are part of the study of ocean, earth and environmental systems.

With a deep commitment to excellence in academics, research and public outreach, CEOE plays a leading role in educating future marine, earth and environmental scientists, educators and policy specialists. Our interdisciplinary emphasis and commitment to the highest scientific ideals prepares students for rewarding careers in teaching, research, and public service. The classrooms and labs at both the Newark and Lewes campuses are active and engaging learning environments where students work closely with the premiere faculty of the college.

Earth, ocean, and environmental scientists view the world on many temporal and spatial levels. From the microscopic realm of bacteria and plankton, to the changes caused by land-surface processes and the everyday domain of the coastal ocean to the panoramic perspective of satellites in space, our scientists and students look at the world through many lenses. We also study the human interactions with the planet and her systems to better understand our interconnectedness with our world. From the cultural and economic landscapes of countries that span the globe, to our own backyards and impacts in our local communities, Human Geographers and Marine Policy specialists strive to better understand how we impact and are impacted by the world in which we live. Here at CEOE, we strive to bring our picture of the Earth, her ocean and environment into ever-sharper focus and to educate well-rounded scientists and policy specialists with the broad vision needed to address today's global problems. Our graduates are interested in all interaction with the planet — from legal, economic, and political aspects of conflict resolution, to understanding and applying natural science principles for the mutual benefit of humankind and the environment. CEOE alumni hold rewarding

careers around the globe, as professors, school teachers, research scientists, ocean engineers, development geologists, resource managers, geoarcheologists, business owners, environmental statisticians, doctors, lawyers, journalists, and diplomats.

Concerns such as climate change, globalization and migration, marine pollution, watershed degradation, energy independence and fisheries decline are at the heart of our work at CEOE. Meeting these challenges often demands expertise in several disciplines, and our curriculum reflects this reality.

Undergraduate students interested in the environment, the Earth, and the ocean are connected to CEOE in a number of ways: a) As majors in Earth Science Education, Geography Education, Geology, Geography, Environmental Studies or Environmental Science; b) As students getting a minor in Marine Studies, Geology, Geography or Coastal and Marine Geoscience; and c) Participating in research opportunities with CEOE faculty through the University of Delaware's Undergraduate Research Program ([www.urp.udel.edu](http://www.urp.udel.edu)) and other research opportunities.

For detailed information about the college's research and facilities, please visit the CEOE website. Specific information specific to the departments and schools can be found at their websites: Department of Geological Sciences, Department of Geography; School of Marine Science and Policy. Information regarding specific faculty members and their research interests can be found at the CEOE Faculty listing.

### Degree Program Offerings

The College of Earth, Ocean, and Environment is one of seven colleges at the University of Delaware. CEOE is also the home of the Delaware Sea Grant College Program. We have a deep commitment to excellence in academics, research and public outreach. CEOE is playing a leading role in educating future earth, ocean, and environmental scientists, educators, and policy specialists. The classrooms and labs at both the Newark and Lewes campuses are active and engaging learning environments where students work closely with our premiere faculty.

There are many degree program offerings and research opportunities for students. Undergraduate students in CEOE can major in Earth Science Education, Geography Education, Geography, Environmental Science, Environmental Studies, or Geology. Geology majors can select a concentration in Paleobiology or Coastal and Marine Geoscience. Environmental Science and Environmental Studies are collaborative degree programs housed in the Department of Geography in which majors select from a number of concentrations which focus their study of the environment in a specific depth area.

Students interested in studying the Earth and Ocean may also choose to minor in Marine Studies, Geology, Geography, or Coastal and Marine Geoscience.

### **Dean's Scholar Program**

The Dean's Scholar Program exists to serve the needs of students whose clearly defined educational goals cannot be effectively achieved by pursuing the standard curricula for all existing majors, minors, and interdepartmental majors sponsored by the University. Driven by an overarching passion or curiosity that transcends typical disciplinary bounds and curricula, a Dean's Scholar's intellectual interests may lead to broad interdisciplinary explorations of an issue or to more intense, in-depth studies in a single field at a level akin to graduate work. In consultation with faculty advisors and the assistant or associate dean of their college, Dean's Scholars design an imaginative and rigorous individual plan of study to meet the total credit hours required for graduation. Contact the Assistant Dean in the College of Earth, Ocean, and Environment or go to [www.udel.edu/deansscholar/](http://www.udel.edu/deansscholar/) for more information and the application.

### **Semester-In-Residence Program**

The University of Delaware College of Earth, Ocean, and Environment (CEOE) is one of the nation's major centers for research and teaching in marine and earth studies.

In addition to facilities at the University of Delaware's main campus in Newark, CEOE maintains a marine research campus in Lewes, Delaware, a historic coastal town situated at the

mouth of Delaware Bay.

The Lewes campus houses several marine lab buildings, a marine studies library, computing sites, and traditional and interactive television classrooms. The campus also houses the CEOE research fleet, most notably the 146-foot R/V Hugh R. Sharp. The R/V Sharp was commissioned in 2005 and is one of the most state-of-the-art academic research vessels in the nation.

### **An Outstanding Opportunity**

Students participating in the Semester-in-Residence (SIR) program live, work, and study at the Lewes campus for the fall semester. The program gives undergraduate students the opportunity to explore marine studies through introductory graduate-level classes and research.

Class offerings include the 400-level Seminar in Marine Science and 600-level classes in marine biosciences, chemical oceanography, physical oceanography, and statistics. In addition to classes with other SIR students, you will have an individual research project offered under the guidance of a faculty mentor in a focused environment.

Many SIR students have gone on to graduate school armed with strong research experience and personalized, extensive, and specific recommendation letters from the faculty who mentored them during the semester. They have found that these experiences and relationships serve them well as they move ahead in their careers.

#### **Tuition and Housing**

Students pay normal University of Delaware tuition based on credit hours taken.

SIR students are housed at the Franklin C. Daiber Residence Complex in Lewes. The Daiber Complex is a University of Delaware facility and is named for Daiber, who was a well-known and respected CEOE professor, researcher, and mentor.

#### **Application and Enrollment**

Enrollment in the SIR program is available on a limited and competitive basis to individuals each fall semester.

SIR is open to any student attending an

accredited four-year undergraduate program. Non-University of Delaware students should contact UD's Office of Professional and Continuing Studies at 302-855-1630. Students should also check with their home institution to verify that it will accept UD credits.

Don't Delay...Apply Today!  
The annual application deadline is March 1

Requirements for consideration:

- \* Junior or senior status
- \* Minimum GPA of 3.0 (4.0=A)
- \* Interest in marine studies
- \* Letter of support from your advisor or another faculty member

To apply send

- \* Letter of interest
- \* Resume
- \* Letter of support
- \* Official transcript of all college work

To:

Semester-in-Residence Program  
School of Marine Science and Policy  
College of Earth, Ocean, and Environment  
700 Pilottown Road  
Lewes, DE 19958-1298

For more information: Phone: 302-831-2841  
E-mail

### **NSF Marine Sciences Summer Internship**

What is it?

Supported by a grant from the National Science Foundation's Division of Ocean Sciences, this REU (Research Experience for Undergraduates) program awards ten science, engineering, and mathematics undergraduates summer internships to conduct guided research in marine science.

Who can participate?

Students between their junior and senior years will receive preference. Interns will work with faculty and research staff in a graduate student atmosphere on a research topic in chemical, physical, or biological oceanography, marine biology, marine geology, or marine biochemistry. Interns will work semi-independently on a project designed by the intern and assigned faculty advisor in Marine Biology, Oceanography or Physical Ocean Science & Engineering. Interns present written and oral reports at the

end of the summer. The program runs for 10 weeks (early June - mid August). Interns will be expected to attend weekly seminars presented by faculty and research staff.

Where does the Program take place?

The marine science internship program is housed at the University of Delaware College of Earth, Ocean, and Environment's Hugh R. Sharp Campus in the resort community of Lewes, Delaware.

This modern campus is located on the shores of Delaware Bay and the Atlantic Ocean near Cape Henlopen State Park. Research and teaching facilities are available in Lewes, which is linked by computer and interactive TV to the main campus in Newark.

Interns can stay at the Daiber Housing Complex, which is comprised of 28 three-bedroom and 2 two-bedroom, semi-detached ranch houses. All units include a range, refrigerator, washer, and dryer. The complex is less than 2 miles from the Hugh R. Sharp Campus and within walking distance of downtown Lewes.

Student support includes a minimum \$5,000 stipend, dormitory fee, and travel assistance for the 10-week session. The 2011 Marine Sciences Summer Intern Program is supported by a grant from the National Science Foundation's Division of Ocean Sciences.

How to Apply

Applicants must be citizens or permanent residents of the United States and its possessions and must be enrolled in a degree program leading to a bachelor's degree. Students who will have received their degree prior to August 2011 are not eligible. Applicants are encouraged to electronically submit their application and a letter describing their general background and interests in pursuing the research experience. The application form and instructions are available here. If you do not have Internet access, please contact us by mail or email at the address below for an application. Applications from women and members of minority groups are especially encouraged.

The deadline for submission is Monday, February 21, 2011. Selection and notification of offers for the program will be made by April 2011.

For information, contact:  
Dr. Ana I. Dittel Email

University of Delaware  
School of Marine Science and Policy  
700 Pilottown Road Lewes  
DE 19958-1298

### **Marine Policy Internship**

Undergraduate students from various disciplines may serve as interns in the Gerard J. Mangone Center for Marine Policy at CEOE and work on a range of research and policy analysis activities with graduate students, faculty, and national and international agencies. The center: conducts an active regional, national and international research program; provides policy advice to governmental and nongovernmental agencies; and organizes conferences, publications, international exchanges, and a visitors program. Major emphases include implementation of the World Summit on Sustainable Development agreements related to the oceans and coasts, the theory and practice of integrated coastal management, the management of coastal ecosystem health, and marine biotechnology.

For more information, contact:

Dr. Biliانا Cicin-Sain, Director E-Mail  
Gerard J. Mangone Center for Marine Policy  
College of Earth, Ocean & Environment  
301 Robinson Hall  
Newark, DE 19716

### **Physical Ocean Science and Engineering (POSE) Internship**

Undergraduate students with a background in physics, mathematics and engineering can undertake advanced study of contemporary research topics in arctic physical oceanography, coastal engineering, underwater acoustics, air-sea interaction, and global climate change.

The POSE internship program is designed to provide undergraduates with hands on experience in physical ocean research. Students work one-on-one with a professor and have access to the latest research facilities including the college's 146-foot research vessel, R/V Hugh R. Sharp, and a number of state-of-the-art laboratory facilities located on both on the Newark and at the Hugh R. Sharp campus in Lewes.

The program typically runs for 2 months during

June and July and includes a monthly stipend and housing assistance.

For more information, contact:

Dr. Mohsen Badiey, Director E-Mail  
Physical Ocean Science and Engineering  
Program  
School of Marine Science and Policy  
107 Robinson Hall  
Newark, DE 19716

### **School of Marine Science and Policy (SMSP)**

#### **About the School**

The School of Marine Science and Policy (SMSP) is an academic unit of the College of Earth, Ocean, and Environment (CEOE). The broad mission of the School is to advance knowledge and education critical to the understanding, stewardship, and conservation of estuarine, coastal, and ocean environments. The School has an internationally recognized faculty and offers exciting educational and research opportunities for graduate students interested in all areas of marine science and policy.

Facilities are located on the Sharp Campus at the mouth of Delaware Bay in Lewes Delaware and in Robinson Hall and Lammot du Pont Laboratory building on the main campus in Newark. The School's facilities are the home to over a dozen research centers, covering a broad range of topics from Environmental Genomics to Carbon-free Power Integration.

The Sharp Campus is home port for the 146-foot R/V Hugh R. Sharp, the most advanced coastal research vessel in the United States. The 64-acre Sharp Campus also features 70,000 square feet of modern laboratory, classroom, and office space in Cannon and Smith Laboratories. The School also provides housing for up to 90 graduate and undergraduate students in residence at Sharp Campus.

Our academic program offerings for undergraduates SMSP is ranked among the top institutions for marine education and research in the United States. While the vast majority of our programs are offered at the Graduate level (Master's and Doctoral Programs are offered in Marine Biosciences, Marine Policy, Oceanography, and Physical Ocean Science and Engineering), there are several opportunities for undergraduate

students interested in pursuing academic work in the field of marine science.

A formal undergraduate degree in Marine Science-Marine Biology is being proposed to start in the Fall semester 2011. CEOE and SMSP currently offer a minor in Marine Studies, a concentration within the Environmental Science degree program as well as a multitude many courses to students in various disciplines. Additionally, CEOE and SMSP work closely with departments such as Biological Sciences, Physics, Chemistry/Biochemistry, Geological Sciences, Geography and Engineering to assist those students who desire to undertake graduate work in Marine Studies after graduation.

for more information:  
Telephone: (302) 645-4346  
SMSP webpage  
Minor in Marine Studies

### MINOR IN MARINE STUDIES

The Minor in Marine Studies is designed for those students who are interested in gaining a deeper understanding of the world ocean, the seabed, and the coastal zone. Students may choose either of two tracks: Physical Ocean Science or Marine Ecosystems. Students choosing either track must complete 9 credits of required courses and 9 credits of electives. Ordinarily, students in the minor would enroll in MAST 492 Seminar: Marine Environmental Case Studies after all other requirements for the minor have been met.

The Minor in Marine Studies consists of 18 credits: three required courses and three elective courses of three credits each. From the elective courses, students should take at least two courses at the 400 or 600 level, and at least one course with an "MAST" listing. Students must receive a grade of "C-" or better for the course to count toward completion of the minor.

Required Courses       9  
MAST 482     Introduction to Ocean Sciences  
MAST 492     Seminar: Marine Environmental  
                  Case Studies  
MAST 402/602

Introduction to Physical Ocean Science  
OR  
MAST 427/627 Marine Biology

Tracks:  
Physical Ocean Science (pick 3 of 6)   9  
GEOG 420     Atmospheric Physics  
GEOG 458     Paleoclimatology  
GEOL 414/614 Quaternary Geology and  
                  Geochronology  
GEOL 434/634 Geology of Coasts  
MAST 437/637 Geological Oceanography  
MAST 628     Offshore Wind Power: Science,  
                  Engineering and Policy

Marine Ecosystems (pick 3 of 6)       9  
BISC 302     General Ecology  
MAST 314/ENWC 314 Comparative Terrestrial  
                  and Marine Ecology  
MAST 421/621 Coastal Field Biology  
MAST 451/651 Marine Invertebrate Diversity  
MAST 630     Topics in Marine Ecology:  
                  Ichthyology  
BISC 637     Population Ecology  
Substitutions may be made for courses in a track  
as approved by the coordinator of the minor  
TOTAL CREDITS       18

Undergraduate Course Offerings in Marine  
Studies

### UNDERGRADUATE COURSE OFFERINGS IN MARINE STUDIES

CEOE also offers courses that are available to students from various science and non-science disciplines. Many of these courses can be used to fulfill electives or breadth requirements in specific degree programs in other colleges. Students should check with their advisor to confirm appropriateness of the coursework for their specific academic program. Several of the most popular CEOE courses are:

"The Oceans" (MAST 200) is designed primarily for non-science majors and provides an overview of how the ocean works. This course integrates basic physical, chemical, geological, and biological principles while exploring topics ranging from why the ocean is salty to the status of the world's fisheries.

A more advanced course, "Introduction to Ocean Sciences" (MAST 482), is geared to junior and senior students pursuing majors and careers in environmental studies, physical and life sciences, or engineering. It is designed both as a stand-alone course and to prepare students for graduate-level oceanography courses. It provides a more detailed introduction to

the ocean including seafloor geography, the chemistry of water and sediments, the physics of ocean circulation, and the biology of the seas. The course takes a problem-solving approach requiring introductory calculus, chemistry, and physics. Subjects covered include global climate change, marine biodiversity, hydrothermal vent communities, coastal pollution, waning fish stocks, and the ozone hole.

Undergraduate students with advanced interests may also enroll in entry-level graduate courses in marine studies with the instructor's permission. While some classes are taught at the CEOE research complex in Lewes, 90 miles south of the main campus, interactive television (ITV) classrooms link the two campuses and allow students to attend class in Newark without commuting to Lewes.

For other Marine Studies courses being offered, click here and type in "MAST" in the course number box.

## Geography

Telephone: (302) 831-2294  
<http://www.udel.edu/Geography>  
Faculty Listing: <http://www.udel.edu/Geography/faculty.html>

The Department of Geography offers BA programs in Geography and Geography Education, as well as a minor in Geography. The Department is the administrative home to the distributed BS in Environmental Science and BA in Environmental Studies degree programs. In addition, the faculty participates in other interdepartmental opportunities.

Geographers investigate processes that explain the location of human and natural phenomena, as well as the interactions between people and their environment. A broad range of interests characterizes geography and reflects its position simultaneously in the natural sciences, social sciences, and humanities.

Students who major in geography may, if they choose, specialize. The department has an excellent program in climatology, for instance, and research may be undertaken through its Center for Climatic Research. Other areas include biogeography, conservation, cultural-historical geography, urban geography, and geomorphology. Skills in geographic information

science (GIS), remote sensing, cartography, and spatial data analysis are also studied by geography majors. Students are required to take an introductory sequence of courses and a capstone course to provide a common background for all majors. During the senior year, majors may, at their option, undertake a research paper under the direction of their program advisors.

## Interdepartmental Majors

An interdepartmental major, for students having interests in two areas, requires 21 credits each in geography and in one other department in the college, plus 9 more elective credits approved by both departments. Of the minimum of 21 credits in geography, a student must take 9 credits from the foundation level, of which one course must be from the Physical Geography area, one course from the Human Geography area, and one course from the Methods area. Nine more geography credits must be taken at the 300/400-level. The remaining three geography credits may be chosen from any 200-, 300-, or 400-level course.

Bachelor of Arts: Geography

## GEOGRAPHY (BA)

### CURRICULUM CREDITS

Students must complete the university-level, college-level and breadth requirements for Bachelor of Arts Degrees in the College of Earth, Ocean, & Environment.

### UNIVERSITY REQUIREMENTS

ENGL 110	Critical Reading and Writing	
(minimum grade C-)		3
First Year Experience (FYE)		0-4
Breadth Requirements		12
Discovery Learning Experience (DLE)		3
Multi-cultural Courses		3

### College Requirements:

Second Writing Requirement: (minimum grade C-) 3

A second writing course involving significant writing experience including two papers with a combined minimum of 3,000 words to be submitted for extended faculty critique of both composition and content. This course must be taken after completion of 60 credit hours. Appropriate writing courses are designated on the registrar's course search page.

Mathematics:(one of the following four options with a minimum grade of D-) 0-4

**OPTION ONE:**

MATH 113 Contemporary Mathematics  
(designed for students who do not intend to continue the study of mathematics)

or

MATH 127 Mathematics and Quantitative Reasoning

**OPTION TWO:**

MATH 114 College Mathematics and Statistics (designed for students who do not intend to continue the study of mathematics)

or

MATH 115 Pre-Calculus  
(designed for students who intend to continue the or study of mathematics)

or

MATH 117 Pre-Calculus for Scientists and Engineers

**OPTION THREE:**

Successful completion of any mathematics course at or above the 200-level except MATH 201, MATH 202, MATH 205, MATH 250, MATH 251, MATH 252, MATH 253, MATH 266, MATH 300 or MATH 450.

**OPTION FOUR:**

Successful performance on a proficiency test in mathematics administered by the Department of Mathematical Sciences. (0 credits awarded)

The math requirement must be completed by the time a student has earned 60 credits. Students who transfer into the College of Earth, Ocean, and Environment with 45 credits or more must complete this requirement within two semesters.

Foreign Language: (with a minimum grade of D-) 0-12

Completion of the intermediate-level course (107 or 112 or 214) in an ancient or modern language. The number of credits needed and initial placement will depend on the number of years of high school study of foreign language. Students with four or more years of high school work in a single foreign language, or who have gained proficiency in a foreign language by other means, may attempt to fulfill the requirement in that language by taking an exemption examination through the Foreign Languages and Literatures Department.

**COLLEGE BREADTH REQUIREMENTS**

These requirements apply to all College of Earth, Ocean & Environment Bachelor of Arts degrees. College breadth courses when combined with University breadth courses must represent at least two departments or appropriate instructional units in each category.

If the grade earned is sufficient, a course may be applied toward more than one requirement (e.g., breadth and major requirements), but the credits are counted only once toward the total credits for graduation. If all but one course in a group has been taken in one department or program, a course cross-listed with that program will not satisfy the distribution requirement.

Group A: Creative Arts and Humanities 6  
Understanding and appreciation of the visual and performing arts, of aesthetic forms, designs, or craftsmanship, or of literary, philosophical, and intellectual traditions. Courses may focus on a single aesthetic form or intellectual tradition, or cross-cultural comparisons.

Group B: History and Cultural Change 6  
Understanding of the sources and forces of historical changes in ideas, beliefs, institutions, and cultures. Courses may address social, cultural, intellectual, economic, technological, artistic, scientific, and political development, changes in a discipline, or globalization and its effects.

Group C: Social and Behavioral Sciences 6  
Understanding of the behavior of individuals and social groups in the context of their human and natural environments. Courses emphasize the empirical findings, applications, and methods of the social and behavioral sciences.

Group D: Mathematics, Natural Sciences and Technology 7  
Understanding of fundamental and/or applied concepts and phenomena from mathematics, logic, natural or physical sciences, and technology including quantitative reasoning and methods used to approach and solve problems.

Courses taken to fulfill this category (university and college breadth) must include a minimum of one course with an associated laboratory

**MAJOR REQUIREMENTS**

Two physical geography courses: 7  
GEOG 101/GEOG 111 Physical Geography:

Climatic Processes, with lab  
or  
GEOG 152 Climate and Life  
GEOG 106

Physical Geography: Land Surface Processes

Two of the following human geography courses:  
6

GEOG 102 Human Geography  
GEOG 120 World Regional Geography  
GEOG 203 Cultural Geography  
GEOG 210 Economic Geography

Two methods courses: 7

GEOG 271 Introduction to Geographic Data  
Analysis  
GEOG 372 Geographic Information  
Systems

Six credits selected from geography courses at  
or above the 300-level 6

Six credits selected from geography courses at  
or above the 200-level 6

GEOG 445 Method and Theory in  
Geography 3

## ELECTIVES

After required courses are completed sufficient  
elective credits must be taken to meet the  
minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

## Geography Education (BA)

### CURRICULUM CREDITS

Students must complete the university-level,  
college-level and breadth requirements for  
Bachelor of Arts Degrees in the College of Earth,  
Ocean & Environment.

### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing  
(minimum grade C-) 3

First Year Experience (FYE) 0-4

Breadth Requirements 12

Discovery Learning Experience (DLE) 3

Multi-cultural Courses 3

Second Writing Requirement:  
(minimum grade C-) 3

A second writing course involving significant  
writing experience including two papers with  
a combined minimum of 3,000 words to be  
submitted for extended faculty critique of both  
composition and content. This course must

be taken after completion of 60 credit hours.  
Appropriate writing courses are designated on  
the registrar's course search page.

Mathematics:(one of the following four options  
with a minimum grade of D-) 0-4

### OPTION ONE:

MATH 113 Contemporary Mathematics  
(designed for students who do not intend to  
continue the study of mathematics)

or

MATH 127 Mathematics and Quantitative  
Reasoning

### OPTION TWO:

MATH 114 College Mathematics and  
Statistics

(designed for students who do not intend to  
continue the study of mathematics)

or

MATH 115 Pre-Calculus

(designed for students who intend to continue  
the or study of mathematics)

or

MATH 117 Pre-Calculus for Scientists and  
Engineers

### OPTION THREE:

Successful completion of any mathematics  
course at or above the 200-level except MATH  
201, MATH 202, MATH 205, MATH 250, MATH  
251, MATH 252, MATH 253, MATH 266, MATH  
300 or MATH 450.

### OPTION FOUR:

Successful performance on a proficiency test in  
mathematics administered by the Department of  
Mathematical Sciences. (0 credits awarded)

The math requirement must be completed by the  
time a student has earned 60 credits. Students  
who transfer into the College of Earth, Ocean  
and Environment with 45 credits or more must  
complete this requirement within two semesters.

Foreign Language:(with a minimum grade of D-)  
0-12

Completion of the intermediate-level course  
(107 or 112 or 214) in an ancient or modern  
language. The number of credits needed and  
initial placement will depend on the number of  
years of high school study of foreign language.  
Students with four or more years of high school  
work in a single foreign language, or who have  
gained proficiency in a foreign language by other  
means, may attempt to fulfill the requirement

in that language by taking an exemption examination through the Foreign Languages and Literatures Department.

#### COLLEGE BREADTH REQUIREMENTS

These requirements apply to all College of Earth, Ocean & Environment Bachelor of Arts degrees. College breadth courses when combined with University breadth courses must represent at least two departments or appropriate instructional units in each category.

If the grade earned is sufficient, a course may be applied toward more than one requirement (e.g., breadth and major requirements), but the credits are counted only once toward the total credits for graduation. If all but one course in a group has been taken in one department or program, a course cross-listed with that program will not satisfy the distribution requirement.

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Understanding and appreciation of the visual and performing arts, of aesthetic forms, designs, or craftsmanship, or of literary, philosophical, and intellectual traditions. Courses may focus on a single aesthetic form or intellectual tradition, or cross-cultural comparisons.

Group B: History and Cultural Change 6  
Understanding of the sources and forces of historical changes in ideas, beliefs, institutions, and cultures. Courses may address social, cultural, intellectual, economic, technological, artistic, scientific, and political development, changes in a discipline, or globalization and its effects.

Group C: Social and Behavioral Sciences 6  
Understanding of the behavior of individuals and social groups in the context of their human and natural environments. Courses emphasize the empirical findings, applications, and methods of the social and behavioral sciences.

Group D: Mathematics, Natural Sciences and Technology 7  
Understanding of fundamental and/or applied concepts and phenomena from mathematics, logic, natural or physical sciences, and technology including quantitative reasoning and methods used to approach and solve problems.

Courses taken to fulfill this category (university and college breadth) must include a minimum of one course with an associated laboratory

#### MAJOR REQUIREMENTS

Two physical geography courses: 7  
GEOG 101/GEOG 111 Physical Geography:  
Climatic Processes, with lab

or  
GEOG 152 Climate and Life

GEOG 106 Physical Geography: Land  
Surface Processes

Two of the following human geography courses:  
6

GEOG 102 Human Geography  
GEOG 120 World Regional Geography  
GEOG 203 Cultural Geography  
GEOG 210 Economic Geography

Two methods courses: 7  
GEOG 271 Introduction to Geographic Data  
Analysis

GEOG 372 Geographic Information  
Systems

Six credits selected from geography courses at  
or above the 300-level 6

Six credits selected from geography courses at  
or above the 200-level 6

GEOG 445 Method and Theory in  
Geography 3  
ECON 151 Introduction to  
Microeconomics 3  
ECON 152 Introduction to  
Macroeconomics 3  
POSC 150 The American Political  
System 3  
HIST 104 World History II 3  
HIST 206 United States History since  
1865 3

Additional credits as follows: 12  
3 credits in ECON, 6 credits in POSC, 3 credits in  
HIST

EDUC 413 Adolescent Development and  
Educational Psychology 4  
EDUC 414 Teaching Exceptional  
Adolescents 3  
EDUC 419 Diversity in Secondary  
Education 3  
HIST 491 Planning a Course of  
Instruction 3  
HIST 493 Seminar: Problems in Teaching  
History and Social Sciences 3  
EDUC 420 Reading in the Content Areas 1

EDUC 400 Student Teaching 9

Grade of C- or better required in all required major, major related, and professional studies courses.

To be eligible to student teach, Geography Education students must have a GPA of 3.0 in their major and an overall GPA of 2.75. They must also pass a teacher competency test as established by the University Council on Teacher Education. Students must consult with the teacher education program coordinator to obtain the student teaching application and other information concerning student teaching policies.

CREDITS TO TOTAL A MINIMUM OF 124

### **Honors-Geography or Geography Education (BA)**

The recipient must complete:

1. All requirements for the Bachelor of Arts Degree in Geography or Geography Education
2. All of the University's generic requirements for the Honors Degree

Minor in Geography

A minimum of 18 credits of course work in geography must be completed for a minor.

Nine (9) credits shall be at the foundation level as follows:

One (1) Physical Geography course: either GEOG 101, GEOG 106, GEOG 152, or GEOG 220

One (1) Human Geography course: either GEOG 102, GEOG 120, GEOG 203, or GEOG 210

One (1) Geographic Methods course: either GEOG 271, or GEOG 372

Nine (9) additional geography credits at or above the 300 level.

### **Environmental Science and Environmental Studies**

The University of Delaware currently offers many environmentally-related degrees in a number of colleges including the College of Agriculture and Natural Resources, the College of Arts and Sciences, the College of Engineering, the College of Education and Public Policy, and the College

of Earth, Ocean, and Environment. Housed in the Department of Geography, the interdisciplinary Bachelor of Arts in Environmental Studies and Bachelor of Science in Environmental Sciences are a collaborative effort involving several departments and colleges.

The Bachelor of Arts in Environmental Studies assists students in gaining a deeper understanding of and appreciation for the environment and environmental systems, the impact of humans on the environment and environmental impacts on humans, the importance of environmental understanding when making economic, political and other policy choices.

The goal is to give students in the program a broad-based, interdisciplinary introduction to environmental policies and issues; the common analytical tools needed to explore them in depth through their specific concentration areas; and the ability to integrate and synthesize information from a multidisciplinary perspective in oral and written format through a capstone course.

The BA in Environmental Studies program's foundation courses are in the social sciences, humanities, and natural sciences with a focus in understanding the environmental field. This, along with their specific concentration area, allows students in connecting science and society and balancing the needs of humans and other inhabitants with the needs to conserve the earth's precious resources while developing strategies, policies and approaches to solve environmental issues and reduce environmental impact.

The Bachelor of Science in Environmental Science emphasizes a broad scientific understanding of the character, function, and analysis of environmental systems. Environmental Science BS students will be able to contribute to society's understanding of and solutions to problems that arise from human occupancy and use of the planet and environment.

The goal is to give students in the program a broad-based, interdisciplinary introduction to the scientific concepts, policies, and issues; the common analytical tools needed to explore environmental issues in depth through their specific concentration areas; and the ability to integrate and synthesize information from a

multidisciplinary perspective in oral and written format through the capstone course.

The BS in Environmental Science program is rigorous in both math and science and includes courses in social science and policy that will help the environmental science major understand the societal context of his/her work. This foundation along with their specific concentration area helps students appreciate the interconnectedness between understanding natural science processes and their applications and the social, political, and institutional frameworks in which environmental issues are considered.

Both degrees are “distributed” degree programs and students can either:

1. Enter the program as a major with a concentration already declared, OR
2. Enter the program as a major and select a specific concentration after taking some of the initial courses required for the major. Students MUST ultimately select a concentration, preferably by the end of the fall semester of their junior year.

There are 4 concentrations in Environmental Studies: International Environmental Politics and Policy; Environmental Law, Policy and Politics; Environmental Economics and Resource Policy; and Environment, Society and Sustainability.

There are 10 concentrations in Environmental Science: Atmospheric Science; Ecology and Organismal Biology; Environmental Chemistry; Environmental Soil Science; Geoscience; Hydrology; Marine Science; Pollution Control; Sustainable Energy Technology; and Water Quality and Resources.

Students are assigned an advisor from their area of concentration. In those cases where the student has not yet selected a concentration, students are assigned an academic advisor from one of the concentrations.

Upon completion of degree requirements, students will receive either a Bachelor of Science in Environmental Science with a specific concentration or a Bachelor of Arts in Environmental Studies with a specific concentration. In some cases, the concentration also fulfills the requirements for a minor in a topical area.

## **Bachelor of Arts in Environmental Studies**

Bachelor of Arts in Environmental Studies  
The BA in Environmental Studies (ENVR) assists students in gaining a deeper understanding of and appreciation for the environment and environmental systems, the impact of humans on the environment and environmental impacts on humans, the importance of environmental understanding when making economic, political and other policy choices.

The goal is to give students in the program a broad-based, interdisciplinary introduction to environmental policies and issues; the common analytical tools needed to explore them in depth through their specific concentration areas; and the ability to integrate and synthesize information from a multidisciplinary perspective in oral and written format through a capstone course.

The BA in Environmental Studies program’s foundation courses are in the social sciences, humanities, and natural sciences with a focus in understanding the environmental field. This, along with their specific concentration area, allows students in connecting science and society and balancing the needs of humans and other inhabitants with the needs to conserve the earth’s precious resources while developing strategies, policies and approaches to solve environmental issues and reduce environmental impact.

There are 4 concentrations in Environmental Studies: International Environmental Politics and Policy; Environmental Law, Policy and Politics; Environmental Economics and Resource Policy; and Environment, Society and Sustainability.

General and University Requirements:  
ENGL 110 Critical Reading and Writing (minimum grade C-) 3  
First Year Experience (FYE) 0-4  
Breadth Requirements 12  
Discovery Learning Experience (DLE) 3  
Multi-cultural Courses 3

Program Requirements:  
Second Writing Course (ENSC450 fulfills this requirement) 3  
A second writing course involving significant writing experience including two papers with a combined minimum of 3,000 words to be submitted for extended faculty critique of both

composition and content. This course must be taken after completion of 60 credit hours. Appropriate writing courses are designated on the registrar's course search page.

Foreign Language (minimum grade of D-)  
0-12

Completion of the intermediate-level course (107 or 112 or 214) in an ancient or modern language. The number of credits needed and initial placement will depend on the number of years of high school study of foreign language. Students with four or more years of high school work in a single foreign language, or who have gained proficiency in a foreign language by other means, may attempt to fulfill the requirement in that language by taking an exemption examination through the Foreign Languages and Literatures Department.

Mathematics requirement:(one of the following four options with a minimum grade of D-) 0-4

OPTION ONE:

MATH 113 Contemporary Mathematics  
(designed for students who do not intend to continue the study of mathematics)

or

MATH 127 Mathematics and Quantitative Reasoning

OPTION TWO:

MATH 114

College Mathematics and Statistics  
(designed for students who do not intend to continue the study of mathematics)

or

MATH 115 Pre-Calculus  
(designed for students who intend to continue the or study of mathematics)

or

MATH 117 Pre-Calculus for Scientists and Engineers

OPTION THREE:

Successful completion of any mathematics course at or above the 200-level except MATH 201, MATH 202, MATH 205, MATH 250, MATH 251, MATH 252, MATH 253, MATH 266, MATH 300 or MATH 450.

OPTION FOUR:

Successful performance on a proficiency test in mathematics administered by the Department of Mathematical Sciences. (0 credits awarded)

The math requirement must be completed by the time a student has earned 60 credits. Students who transfer into the College of Earth, Ocean, and Environment with 45 credits or more must complete this requirement within two semesters.

Program Breadth Requirements:

At least 2 different areas must be represented in each group.

Group A: Creative Arts and Humanities 6

Group B: History and Cultural Change 6

Group C: Social and Behavioral Sciences 6

Group D: Mathematics, Natural Sciences and Technology 7

Program Core Requirements:

ENSC 101 Introduction to the Environment 3  
BISC 104 Principles of Biology with Laboratory 4  
CHEM 100 Chemistry and Human Environment 3  
GEOL 105 Geological Hazards 3  
GEOL 115 Geological Hazards Laboratory 1  
FREC 100 Sustainable Development 3

ECON 151

Introduction to Microeconomics

OR

FREC 150 Economics of Agriculture & Natural Resources 3

ECON 343/FREC 343 Environmental Economics 3

GEOG 235 Conservation of Natural Resources 3

GEOG 236 Conservation: Global Issues 3

MAST 200 The Oceans 3

POSC 240 Introduction to International Relations 3

POSC 350 Politics and the Environment 3

PHIL 448 Environmental Ethics 3

STAT 200 Basic Statistical Practice 3

Field Experience: An approved 3-6 credit studies field experience in which the student integrates the components of his or her concentration in an experiential learning environment. This requirement could be fulfilled by an internship, study abroad experience and/or a research experience.

Studies Concentrations: 5-6 courses clustered in concentrations that are distributed throughout the colleges and across disciplines (see listings below).

**Capstone Course: ENSC 450: Proseminar: The Environment**

This 3 credit capstone course serves as a culminating experience and is to be completed during the last semester of the senior year. This course will engage students in an exploration and discussion of the history and state of environmental studies and its connection to local, regional, national and global scale environmental issues. Students will develop and refine critical thinking skills and interdisciplinary problem-solving strategies. It serves to be a culminating experience for students on the "science-side" and the "studies-side" to collaboratively solve problems and discuss issues in the current environmental literature.

Electives: After required courses are completed, sufficient credits must be taken to meet the total minimum credits required for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

**International Environmental Law, Policy, and Politics Concentration**

**Concentration in International Environmental Politics and Policy**

The concentration in international environmental law, policy, and politics is designed for students who want to focus on the international dimensions of environmental issues. Students who pursue this concentration can expect to learn about the organization of the international system, its structure, operating principles, and formal and informal components; development of international law, legal processes and institutions including environmental treaties and international environmental disputes; the art and practice of diplomacy; the interaction between nations' foreign and environmental policies; and the relationship between the international political economy and global and domestic environmental problems.

Topics courses may explore specific environmental issues such as population growth, the relationship between international immigration and environmental degradation, climate change, energy, and oceans policy as well as the similarities and differences in pollution regulations of various nations.

GEOG 422/GEOG 622 Resources, Development, And The Environment

OR

POSC 408 International Organization

Four of the following:

GEOG 329/POSC 329 International Migration

MAST 673 International Law (LEST 673, POSC 604)

POSC 362 Diplomacy  
POSC 363 International Law And Organization

POSC 409 Contemporary Problems In World Politics (when topic is appropriate)

POSC 451 Problems In Policy & Administration (when topic is appropriate, e.g., Comparative Environmental Policy & Politics)

POSC 640 International Development Policy and Administration

SOCI 331 World Population: Profiles And Trends

**Environmental Economics and Resource Policy Concentration**

**Concentration in Environmental Economics and Resource Policy**

Using sound economics is critical to the sustainable management and protection of the environment and natural resources, such as land, water, soil, plants and animals. This concentration trains students to use economics to better understand human behavior and to develop policies and institutions that can improve the lives of humans while protecting the environment. Students completing this concentration have been employed in state and federal agencies responsible for environmental protection and natural resource use, non-profit organizations, and environmental consulting firms.

ECON 350 Energy Economics  
FREC 406 Agriculture and Natural Resource Policy

FREC 424 Resource Economics  
FREC 420 Agriculture in Economic Development

FREC 429 Community Economic Development

FREC 480 Geographic Information Systems

AND

Two of the following:

- ENWC 413 Wildlife Policy and Administration (requires ENWC 201)
- FREC 611/UAPP 611 Regional Watershed Management
- FREC 450/LEST 450 Topic in Environmental Law
- GEOG 320 Water and Society
- GEOG 422/622 Resources, Development, and The Environment
- POSC 626 Conservation and Renewable Energy Policy
- POSC 424 Energy Policy and Administration
- POSC 456/656 Disaster and Politics Environmental Law, Policy, and Politics Concentration

Concentration in Environmental Law, Policy and Politics

The concentration in environmental law, policy and politics is designed for students primarily interested in American environmental policy and politics. Of course, given the global nature of many environmental issues, the international context of environmental politics in the United States is addressed.

The concentration allows students to explore the growth of the environmental movement in the United States; examine the interaction between philosophical, political, economic and psychological factors associated with individual environmental behaviors; analyze different institutional and policy approaches to solving environmental problems at the local, regional and national levels; and explore in some depth specific policy areas such as water quality, climate change, wildlife management, and population growth.

Student must select 5 courses from the following 2 groups:

Two or three of the following:

- FREC 450 Topics In Environmental Law
- GEOG 240 Environment and Behavior
- GEOG 449 Environment and Society
- HIST 367 American Environmental History
- MAST 692 Environmental Values, Movements And Policy
- POSC 380 Introduction To Law
- POSC 363 International Law And Organization
- SOCI 330 Population, Law And Society
- SOCI 470 Environmental Sociology

AND

Two or three of the following:

- ENWC 413 Wildlife Policy and Administration (requires ENWC 201)
- FREC 406 Agriculture and Natural Resource Policy
- FREC 611 Regional Watershed Management
- GEOG 320 Water and Society
- GEOG 428/UAPP 628 Issues In Land Use And Environmental Planning
- MAST 620/POSC 424 Energy Policy And Administration
- MAST 626/POSC 626 Conservation And Renewable Energy Policy
- MAST 670 United States Ocean And Coastal Policy
- MAST 671 Coastal Processes And Management
- POSC 451 Topics In Policy And Administration: Climate Change Policy
- POSC 456/656 Disaster And Politics

Environment, Society, and Sustainability Concentration

Concentration in Environment, Society and Sustainability

This concentration emphasizes how economic, social and environmental policies and decision making affects the ability of human population and societies to support themselves without depleting the Earth's resources and compromising the ability of future societies to meet their needs. Key ideas explored in this concentration are "conservation," "stewardship," and "living harmoniously with the natural environment."

GEOG 422/622 Resources, Development, and The Environment

Four of the following:

- GEOG 372 Geographic Information Systems or
- FREC 480 Geographic Information Systems in Natural resource management
- FREC 450 Topics In Environmental Law
- FREC 424 Resource Economics
- FREC 429 Community Economic Development
- GEOG 449 Environment and Society
- GEOG 320 Water and Society
- GEOG 345 Cultural Geography
- HIST 367 American Environmental

	History
MAST 626/POSC 626	Conservation and Renewable Energy Policy
MAST 692	Environmental Values, Movements and Policy
PLSC 140	People and Plants: Feast or Famine
POSC 456/656	Disaster and Politics
POSC 640	International Development Policy and Administration
SOCI 330	Population, Law and Society
SOCI 331	World Population: Profiles and Trends
SOCI 470	Environmental Sociology

### Environmental Science (BS)

The Bachelor of Science in Environmental Science emphasizes a broad scientific understanding of the character, function, and analysis of environmental systems. Environmental Science BS students will be able to contribute to society's understanding of and solutions to problems that arise from human occupancy and use of the planet and environment.

The goal is to give students in the program a broad-based, interdisciplinary introduction to the scientific concepts, policies, and issues; the common analytical tools needed to explore environmental issues in depth through their specific concentration areas; and the ability to integrate and synthesize information from a multidisciplinary perspective in oral and written format through the capstone course.

The BS in Environmental Science program is rigorous in both math and science and includes courses in social science and policy that will help the environmental science major understand the societal context of his/her work. This foundation along with their specific concentration area helps students appreciate the interconnectedness between understanding natural science processes and their applications and the social, political, and institutional frameworks in which environmental issues are considered.

There are 10 concentrations in Environmental Science: Atmospheric Science; Ecology and Organismal Biology; Environmental Chemistry; Environmental Soil Science; Geoscience; Hydrology; Marine Science; Pollution Control; Sustainable Energy Technology; and Water Quality and Resources.

General and University Requirements:  
 ENGL 110 Critical Reading and Writing (minimum grade C-) 3  
 First Year Experience (FYE) 0-4  
 Breadth Requirements 12  
 Discovery Learning Experience (DLE) 3  
 Multi-cultural Courses 3  
 Second Writing Course (ENSC450 fulfills this requirement) 3  
 A second writing course involving significant writing experience including two papers with a combined minimum of 3,000 words to be submitted for extended faculty critique of both composition and content. This course must be taken after completion of 60 credit hours. Appropriate writing courses are designated on the registrar's course search page.

Foreign Language (with a minimum grade of D-) 0-12  
 Completion of the intermediate-level course (107 or 112 or 214) in an ancient or modern language. The number of credits needed and initial placement will depend on the number of years of high school study of foreign language. Students with four or more years of high school work in a single foreign language, or who have gained proficiency in a foreign language by other means, may attempt to fulfill the requirement in that language by taking an exemption examination through the Foreign Languages and Literatures Department.

Program Breadth Requirements  
 These program breadth courses, when combined with University breadth courses must represent at least two departments or appropriate instructional units in each category.

If the grade earned is sufficient, a course may be applied toward more than one requirement (e.g., breadth and major requirements), but the credits are counted only once toward the total credits for graduation. If all but one course in a group has been taken in one department or program, a course cross-listed with that program will not satisfy the distribution requirement.

Group A Creative Arts and Humanities. 3

Group B History and Cultural Change 3

Group C Social and Behavioral Sciences 3

Program Core Requirements:  
 ENSC 101 Introduction to the Environment 3

BISC 207	Introductory Biology I	4	
BISC 208	Introductory Biology II	4	
ENWC 201	Wildlife Conservation and Ecology	3	
CHEM 103	General Chemistry I	4	
CHEM 104	General Chemistry II	4	
GEOL 107	General Geology	4	
GEOG 220	Meteorology	3	
GEOG 412	Physical Climatology	4	
MAST 482	Introduction to Ocean Science	3	
POSC 350	Politics and the Environment	3	
FREC 100	Sustainable Development	3	
MATH 241	Analytical Geometry and Calculus A	3	
MATH 242	Analytical Geometry and Calculus B	3	
GEOG 271	Introduction to Geographic Data Analysis	4	
PHYS 201	Introductory Physics		
OR			
PHYS 207	Fundamentals of Physics*	4	

\*Dependent on concentration, see concentration details for specifics

Field Experience: An approved 3-6 credit science field experience in which the student integrates the components of his or her concentration in an experiential learning environment. Experience MUST include data collection, manipulation of data sets and weekly reports/field notes. This requirement could be fulfilled by an internship, study abroad experience and/or a research experience so long as the above criteria are met.

Science Concentrations: 5-6 courses clustered in concentrations that are distributed throughout the colleges and across disciplines (see listings below)

Capstone Course: ENSC 450: Proseminar: The Environment  
This 3 credit capstone course serves as a culminating experience and is to be completed during the last semester of the senior year. This course will engage students in an exploration and discussion of the history and state of environmental studies and its connection to local, regional, national and global scale environmental issues. Students will develop and refine critical thinking skills and interdisciplinary problem-solving strategies. It serves to be a culminating experience for students on the "science-side" and the "studies-side" to collaboratively solve problems and discuss issues in the current environmental literature.

Electives: After required courses are completed, sufficient credits must be taken to meet the total minimum credits required for the degree.

Total Credits for Degree: 124

Atmospheric Science Concentration  
Concentration in Atmospheric Science  
The Concentration in Atmospheric Science provides an opportunity for Environmental Science majors to study how energy and moisture are transferred among earth's environmental spheres (e.g., biosphere-atmosphere, hydrosphere-atmosphere) and how humans impact our weather and climate. Emphasis is placed on the physical climatology of interactions among spheres, although courses within ecological climatology are also offered. Individual courses delve into the intricacies of atmospheric science above (e.g., GEOG 420, Atmospheric Dynamics) or within (e.g., Geog 451, Microclimatology) the boundary layer. Many aspects of atmospheric science are quantitative in nature, requiring knowledge of advanced calculus and/or statistics; thus MATH 243 is required, along with one additional course in differential equations, linear algebra, or statistics.

MATH 243 Analytical Geometry and Calculus C

One of the following:

MATH 302 Ordinary Differential Equations  
MATH 349 Elementary Linear Algebra  
MATH 450 Statistics for Engineering & Physical Sciences  
ENSC 475 Statistics for Environmental Science  
STAT 657 Statistics for Earth Sciences

and

Three of the following:

GEOG 342 Bioclimatology  
GEOG 420 Atmospheric Physics  
GEOG 423 Atmospheric Dynamics  
GEOG 451 Microclimatology  
GEOG 453 Synoptic Climatology  
GEOG 456 Hydroclimatology

Ecology and Organismal Biology Concentration

Concentration in Ecology and Organismal Biology  
This concentration focuses on studying the interaction of organisms with their physical and biological environment. Students interested

in studying this interaction with an emphasis on the physical environment would best fit this concentration. This major/concentration is distinct from the Wildlife Conservation major, which focuses on the application of ecological principles for conservation and management of ecosystems and wildlife species. Graduates from the concentration in Ecology and Organismal Biology should be prepared to gain employment as environmental scientists or seek graduate education in Environmental Science.

BISC 302      General Ecology  
BISC 495      Evolution  
ENWC 205     Elements of Entomology  
ENWC 325     Wildlife Management

and two of the following:

BISC 317      Tropical Ecology  
BISC 321      Environmental Biology  
ENWC 418     Ornithology  
ENWC 419     Biological Control  
ENWC 425     Mammalogy  
ENWC 435     Wildlife Population Dynamics  
ENWC 444/BISC 440   Conservation of Tropical Biodiversity  
ENWC 456     Conservation Biology  
ENWC 620     Behavioral Ecology  
MAST 427/627   Marine Biology  
MAST 629     Topics in Marine Ecology

#### Environmental Chemistry Concentration

Concentration in Environmental Chemistry (also fulfills the minor in chemistry)

The concentration in Environmental Chemistry explores the chemical basis for understanding environmental processes on local, regional and global scales. Environmental chemists study the source, reaction, transport, effect and fate of chemical species in and across air, water and soil. Because of the complexity of the environment, many types of chemical phenomena may contribute to a single environmental problem. For this reason, the concentration provides a strong background in fundamental principles across the field of chemistry. With this background, students are poised to make significant contributions to multidisciplinary projects where understanding and manipulating the underlying chemical phenomena are critical to success. Some examples include the chemistry and biochemistry of greenhouse gas formation and destruction, sequestration of toxic materials in a chemical form that reduces bioavailability, and

transport of human-derived pollutants to remote locations.

CHEM 220/CHEM 221   Quantitative Analysis with Laboratory  
CHEM 321      Organic Chemistry I

One of the following:

CHEM 418 and CHEM 445 or CHEM 446  
Physical Chemistry with Lab  
CHEM 457/CHEM 458   Inorganic Chemistry with Laboratory  
CHEM 527      Introductory Biochemistry

and

One of the following:

CHEM 608      Environmental Soil Chemistry  
CHEM 683      Environmental Chemistry  
CIEG 632      Chemical Aspects of Environmental Engineering  
MAST 646      Chemical Oceanography

#### Environmental Soil Science Concentration

Concentration in Environmental Soil Science (also fulfills requirements for a Minor in Environmental Soil Science)

This concentration focuses on the study one of the world's most valuable natural resources--soil--and its relationship with environmental quality, plant growth, and human health. Some of the many questions that soil science seeks to answer are: How can we produce food and energy crops for a growing world while protecting our air and water quality? How do chemical and physical reactions in the soil affect contaminant transport to ground and surface waters? What impacts do acid rain and global warming have on the quality of the soils in which we grow our food? Is it possible to use native soil microorganisms to remediate soil pollution and restore degraded lands to productive uses? Students in ESOS take courses in plant science, soil science, chemistry, physics, geology, and environmental science and policy to develop a sound, scientific understanding of the many natural and anthropogenic factors affecting soil use and land management. Environmental Soil Science majors also work closely with our faculty, an internationally respected group of scholars with expertise in soil chemistry, soil physics, soil and water conservation, and soil microbiology. Not only do our students learn from their professors in class, but they get to know them outside of the lecture hall and labs, through faculty-mentored research projects, club activities, independent

studies, and internships. Students also benefit from faculty when it comes to choosing classes, searching for internships, and planning for future careers.

PLSC 204 Introduction to Soil Science  
PLSC 205 Introduction to Soil Science Lab  
PLSC 305 Soil Fertility and Plant Nutrition

and

Three of the following courses:

PLSC 151 Introduction to Crop Science  
PLSC 319 Environmental Soil Microbiology  
PLSC 401 Agronomic Crop Science  
PLSC 603 Soil Physics  
PLSC 608 Environmental Soil Chemistry

#### GeoScience Concentration

Concentration in GeoScience (also fulfills requirements for a Minor in Geology)  
The Earth is a dynamic, integrated system that includes rocks and minerals, water, the atmosphere, and living organisms. Environmental Science Students who concentrate in Geoscience explore how earth materials and geological processes have operated and impacted the planet's surface environments over both human and geologic time scales. We focus on understanding the geologic connection of humans and their environment and efficient uses of land, water, energy, and mineral resources. This environmental concentration gives students knowledge of the geological processes above, on, and below the earth's surface, emphasizing how these processes operate through time to mold our planet's surface and near-surface environment.

One of the following year-long sets:

GEOL 300 The Earth's Materials I: Minerals  
GEOL 302 The Earth's Materials II: Rocks  
or  
GEOL 303 The Earth's Surface I: Surficial Processes  
GEOL 304 Earth's Surface II: Stratigraphy  
or  
GEOL 305 Earth's Lithosphere I: Structural Geology & Plate Tectonics  
GEOL 306 Earth's Lithosphere II: Field Geology

or

GEOL 307 Earth's History I: Paleobiology  
GEOL 308 Earth's History II: Earth System Science

And 6-8 credits of additional Geology courses at the 300-level or above

#### Hydrology Concentration

##### Concentration in Hydrology

The Concentration in Hydrology provides an opportunity for Environmental Science majors to study the movement, distribution, quantity, and quality of water on Earth. Students pursuing this concentration will have the opportunity to study aspects of hydrology that range from the atmosphere to the Earth's subsurface, and from biogeochemical processes to policy and water management. Eight courses in water science are offered from four Departments (Geological Sciences, Geography, Civil and Environmental Engineering, and Bioresources Engineering), of which three are required. Many aspects of hydrology are quantitative in nature, requiring knowledge of basic calculus and in some cases more advanced calculus and/or statistics; thus MATH 243 is required, along with one additional course in differential equations, linear algebra, or statistics.

MATH 243 Analytical Geometry and Calculus C

and

One of the following:

MATH 302 Ordinary Differential Equations  
MATH 349 Elementary Linear Algebra  
MATH 450 Statistics for Engineering and Physical Sciences  
ENSC 475 Statistics for Environmental Science  
STAT 657 Statistics for Earth Sciences

and

Three of the following:

GEOL 428 Hydrogeology  
GEOL411/611 Fluvial Geomorphology  
GEOG 320 Water and Society  
GEOG 431 Watershed Ecology  
GEOG 456 Hydroclimatology  
CIEG 443 Watershed Engineering, Planning and Design  
BREG 321 Storm-Water Management (pre-requisite)  
BREG 622 Watershed Modeling (pre-requisites)

#### Marine Science Concentration

Concentration in Marine Science (also fulfills requirements for a Minor in Marine Studies)

The concentration in Marine Science allows students to study and better understand the environment of the ocean, the seabed, and the coastal zone. Building on the foundation of MAST 482 Introduction to Ocean Sciences in the ENSC core, students choose a focus in either the physical ocean or in marine ecosystems. Students in either focus must complete 6 credits of required courses (one introductory course and MAST 492 Marine Environmental Case Studies) and 9 credits of focused electives. These courses allow students to gain a depth of understanding of the Marine Environment.

**Marine Ecosystems Track:**

MAST 427/627 Marine Biology  
 MAST 492 Seminar: Marine Environmental Case Studies

and

Three of the following:

BISC 302 General Ecology  
 MAST 314/ENWC 314 Comparative Terrestrial and Marine Ecology  
 MAST 421/621 Coastal Field Biology  
 MAST 451/651 Marine Invertebrate Diversity  
 MAST630 Topics in Marine Ecology: Ichthyology  
 BISC 637 Population Ecology

**Physical Ocean Science Track:**

MAST 402/602 Introduction to Physical Ocean Science  
 MAST 492 Seminar: Marine Environmental Case Studies

and

Three of the following:

GEOG 420 Atmospheric Physics  
 GEOG 357 Paleoclimatology  
 GEOL 414/614 Quaternary Geology and Geochronology  
 GEOL 434/634 Geology of Coasts  
 MAST 437/637 Geological Oceanography  
 MAST 628 Offshore Wind Power: Science, Engineering and Policy

**Pollution Control Concentration**

**Concentration in Pollution Control**

Because humans generate many waste materials, there is considerable need to design systems to manage and treat such wastes. Such management/treatment systems are essential for maintaining our air, water and soil quality. In addition, system-wide approaches, e.g., life cycle analyses, are critical to understanding the impact

of new industries and alternative systems, e.g., biofuels from agricultural feedstocks, on the environment. Students learn the approaches and models needed to manage and treat wastes that may affect the terrestrial environment.

MATH 243 Analytical Geometry and Calculus C

CIEG 233 Environmental Engineering Processes  
 OR

CHEG 112 Introduction to Chemical Engineering

Three of the following:

CIEG 438 Water and Wastewater Engineering  
 CIEG 433 Hazardous Waste Management  
 CIEG 436 Processing, Recycling, Management of Solid Wastes  
 BREG 424 Water Supply and Water Treatment Systems

**Sustainable Energy Technology Concentration**

Concentration in Sustainable Energy Technology (also fulfills requirements for a minor in Sustainable Energy Technology)

Developing new energy sources that have minimal environmental impact is one of the greatest challenges of our society. Wind energy, biofuels, solar energy, and fuel cells are examples of topical areas included in this concentration. Students have the opportunity to study modern technologies for, and recent advances in energy production, energy storage and energy use. Quantitative approaches are emphasized and include assessments of the economic and local and global environmental impact of alternative energy sources.

POSC424 Energy Policy and Administration

Three (9 credits or more) out of the following set of courses (\*including any required prerequisites):

CHEG 616 Chemistry and Physics of Surfaces and Interfaces\*  
 CHEG 625 Green Engineering  
 CIEG 351 Transportation Engineering  
 MEEG 425 Automotive Powertrain Theory\*  
 MEEG 442 Introduction to Fuel Cells\*  
 MEEG 435 Wind Power Engineering\*  
 EGTE 456 Fundamentals of Heating,

Ventilation and Air Conditioning\*  
 ELEG 620 Solar Electric Systems  
 ELEG 415/ELEG 615 Electric Power and Renewable Energy Systems\*  
 ELEG 467/ELEG 667 Low Power Electronics and Lighting  
 CHEG 612 Applied Process Heat Transfer\*  
 CHEG 614 Special Topics in Energy  
 CHEG 468 Research (3 cr)

One course from the following list:

GEOG 622 Resources, Development & the Environment  
 GEOG 236 Conservation: Global Issues  
 MAST 675 Economics of Natural Resources  
 MAST 628 Offshore Wind Power: Science, Engineering, and Policy  
 GEOG 617 Seminar in Climate Change\*

#### Water Quality and Resources Concentration

Concentration in Water Quality and Resources  
 Water in our bays, rivers, streams, lakes, and groundwater systems are heavily utilized by humans and impacted by human activity. Excessive water withdrawals from rivers and aquifers impact stream ecology and water availability for agriculture. Pollutants such as mercury and pharmaceutical compounds can affect aquatic life. Students learn the models describing water movement in these systems, and, just as important, the models describing the physical, chemical, and biological processes affecting the fate of contaminants. Emphasis is given to understanding the quantitative models required by society to manage our water quality and resources.

MATH 243 Analytical Geometry and Calculus C  
 MATH 302 Differential Equations

one of the following:

CIEG 223 Environmental Engineering Processes

or

CHEG 112 Introduction to Chemical Engineering

or

CIEG 331 Environmental Engineering

one of the following:

CIEG 305 Fluid Mechanics

or

MEEG 331 Fluid Mechanics I

or

CHEG 341 Fluid Mechanics

and

Two of the following:

CIEG 430 Water Quality Modeling

CIEG 438 Water and Wastewater Engineering

CIEG 440 Water Resources Engineering (requires CIEG 305/CIEG 306)

CIEG 468 Principles of Water Quality Criteria

CIEG 498 Groundwater Flow and Contaminant Transport

BREG 423 Advanced Storm-Water Management

BREG 621 Nonpoint Source Pollution

#### Geological Sciences

Telephone: (302) 831-2569

<http://www.geosci.udel.edu>

The Earth is a dynamic, integrated system that includes rocks and minerals, water, the atmosphere, and living organisms. As part of the University of Delaware's College of Earth, Ocean, and Environment (CEOE), the Department of Geological Sciences is dedicated to advancing our understanding of the natural world and how geological processes have operated over various time scales to create and influence the planet's surface environments.

Our faculty and students explore land, rivers, beaches, and oceans around the globe. Whether they're in a laboratory, in a classroom, or out in the field, students work hand-in-hand with faculty to develop the next generation of technologies used to address complex geological and environmental challenges.

One innovative example is our autonomous underwater vehicle (AUV), which is one of only about a dozen in existence worldwide. Faculty and students have deployed the torpedo-shaped vehicle to gather underwater data on everything from coral reefs off the Caribbean island of Bonaire to a Byzantine shipwreck in the Black Sea.

Examples of additional state-of-the-art equipment available to faculty and students include a Visualization and Simulation Telepresence (VAST) Lab, a portable ground-penetrating radar and seismograph systems used to image the ground's subsurface and

record measurements of ground motions, respectively; a Topcon total station used for surveying; and a vibracoring system for taking sediment core samples.

Housed in Penny Hall, the Department of Geological Sciences offers undergraduate major programs leading to B.A. degrees in Geology and in Earth Science Education. The Department offers major programs leading to B.S. degrees in Geology. Students pursuing a Bachelor of Science in Geology can take a concentration in Coastal and Marine Geoscience or Paleobiology. Students from other majors can earn a minor in Geology or Coastal and Marine Geoscience. Environmental Science majors can earn a concentration and a minor in Geology while earning a B.S. in Environmental Science. Our academic programs place special emphasis on the study and understanding of surface and near-surface processes, including coastal sediment transport, geomorphology, hydrogeology, geobiology, environmental geophysics, and Quaternary geology (the study of Earth's most recent geological time period).

No matter the topic, our students and faculty often find themselves in collaborations with colleagues at the Delaware Geological Survey (DGS) and other programs throughout the university. DGS projects include creating maps of the state's geology, monitoring seismic activity, and studying Delaware's hydrogeologic framework. As members of CEOE, our geologists often team up with marine studies specialists and make use of the university's 146-foot seagoing oceanographic research vessel, the Hugh R. Sharp.

Geology graduates choose from diverse career options. While many geoscientists have traditionally made careers in the oil industry, growing concern for the global environment and the need to consider geologic processes as part of an integrated global system have opened a wide variety of new employment areas.

These professions focus on understanding geologic hazards and defining efficient uses of land, water, energy, and mineral resources, and require integrative knowledge of the chemical, physical, and biological processes above, on, and below the earth's surface. By emphasizing how these processes operate through time to mold our planet's surface and near-surface environment, our teaching has provided positive opportunities for graduates as they continue

their education or pursue employment in environmental and other sectors.

## **GEOLOGY (BA)**

### **CURRICULUM CREDITS**

These university-level, college-level and breadth requirements apply to all programs in the College of Earth, Ocean, and Environment.

### **UNIVERSITY REQUIREMENTS**

ENGL 110 Critical Reading and Writing (minimum grade C-) 3  
First Year Experience (FYE) 0-4  
Breadth Requirements 12  
Discovery Learning Experience (DLE) 3  
Multi-cultural Courses 3

### **COLLEGE REQUIREMENTS**

Second Writing Requirement (minimum grade C-) 3  
A second writing course involving significant writing experience including two papers with a combined minimum of 3,000 words to be submitted for extended faculty critique of both composition and content. This course must be taken after completion of 60 credit hours. Appropriate writing courses are normally designated on the registrar's course search page.

Foreign Language (minimum grade of D-) 0-12  
Completion of the intermediate-level course (107 or 112 or 214) in a given language. Number of credits needed and initial placement will depend on number of years of high school study of foreign language. Students with four or more years of high school work in a single foreign language may attempt to fulfill the requirement in that language by taking an exemption examination.

Mathematics: (one of the following four options with a minimum grade of D-) 0-4  
OPTION ONE:

MATH 113 Contemporary Mathematics (designed for students who do not intend to continue the study of mathematics)  
or  
MATH 127 Mathematics and Quantitative Reasoning

#### OPTION TWO:

MATH 114 College Mathematics and Statistics

(designed for students who do not intend to continue the study of mathematics)

or

MATH 115 Pre-Calculus

(designed for students who intend to continue the study of mathematics)

or

MATH 117 Pre-Calculus for Scientists and Engineers

#### OPTION THREE:

Successful completion of any mathematics course at or above the 200-level except MATH 201, MATH 202, MATH 205, MATH 250, MATH 251, MATH 252, MATH 253, MATH 266, MATH 300 or MATH 450.

#### OPTION FOUR:

Successful performance on a proficiency test in mathematics administered by the Department of Mathematical Sciences. (0 credits awarded)

#### COLLEGE BREADTH REQUIREMENTS

These requirements apply to all College of Earth, Ocean & Environment Bachelor of Arts degrees. College breadth courses when combined with University breadth courses must represent at least two departments or appropriate instructional units in each category.

If the grade earned is sufficient, a course may be applied toward more than one requirement (e.g., breadth and major requirements), but the credits are counted only once toward the total credits for graduation. If all but one course in a group has been taken in one department or program, a course cross-listed with that program will not satisfy the distribution requirement.

Group A: Creative Arts and Humanities 6

Understanding and appreciation of the visual and performing arts, of aesthetic forms, designs, or craftsmanship, or of literary, philosophical, and intellectual traditions. Courses may focus on a single aesthetic form or intellectual tradition, or cross-cultural comparisons.

Group B: History and Cultural Change 6

Understanding of the sources and forces of historical changes in ideas, beliefs, institutions, and cultures. Courses may address social, cultural, intellectual, economic, technological,

artistic, scientific, and political development, changes in a discipline, or globalization and its effects.

Group C: Social and Behavioral Sciences 6  
Understanding of the behavior of individuals and social groups in the context of their human and natural environments. Courses emphasize the empirical findings, applications, and methods of the social and behavioral sciences.

Group D: Mathematics, Natural Sciences, and Technology 7  
Understanding of fundamental and/or applied concepts and phenomena from mathematics, logic, natural or physical sciences, and technology including quantitative reasoning and methods used to approach and solve problems.

Courses taken to fulfill this category (university and college breadth) must include a minimum of one course with an associated laboratory

#### MAJOR REQUIREMENTS:

One of the following:

GEOL 105/GEOL 115 Geologic Hazards and their Human Impact and Laboratory

Note: GEOL 115 and GEOL 105 must be taken concurrently 4

or

GEOL 107 General Geology 4

or

GEOL 113 Earth Science 4

and

GEOL 300 Earth's Materials I: Minerals 4

GEOL 302 Earth's Materials II: Rocks 4

GEOL 303 Earth's Surface I: Surficial Processes 4

GEOL 304 Earth's Surface II: Stratigraphy 4

GEOL 305 Earth Lithosphere I: Structural Geology and Plate Tectonics 4

GEOL 306 Earth's Lithosphere II: Field Geology 4

GEOL 307 Earth's History I: Paleobiology 4

GEOL 308 Earth's History II: Earth System Science 4

CHEM 103 General Chemistry I 4

CHEM 104 General Chemistry II 4

PHYS 201 Introductory Physics I 4

PHYS 202 Introductory Physics II 4

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

## EARTH SCIENCE EDUCATION (BA)

### CURRICULUM CREDITS

Students must complete the university-level, college-level and breadth requirements for College of Earth, Ocean, and Environment Bachelor of Arts degrees.

### UNIVERSITY REQUIREMENTS:

ENGL 110 Critical Reading and Writing (minimum grade C-) 3  
First Year Experience (FYE) 0-4  
Breadth Requirements 12  
Discovery Learning Experience (DLE) 3  
Multicultural Courses 3

### COLLEGE REQUIREMENTS:

Second Writing Requirement (minimum grade of C-) 3

A second writing course involving significant writing experience including two papers with a combined minimum of 3,000 words to be submitted for extended faculty critique of both composition and content. This course must be taken after completion of 60 credit hours. Appropriate writing courses are designated on the registrar's course search page.

Foreign Language (minimum grade of D-) 0-12

Completion of the intermediate-level course (107 or 112 or 214) in a given language. Number of credits needed and initial placement will depend on number of years of high school study of foreign language. Students with four or more years of high school work in a single foreign language may attempt to fulfill the requirement in that language by taking an exemption examination.

### COLLEGE BREADTH REQUIREMENTS:

These requirements apply to all College of Earth, Ocean & Environment Bachelor of Arts degrees. College breadth courses when combined with University breadth courses must represent at least two departments or appropriate instructional units in each category.

If the grade earned is sufficient, a course may be applied toward more than one requirement (e.g., breadth and major requirements), but the credits are counted only once toward the total credits for graduation. If all but one course in a group has been taken in one department or program,

a course cross-listed with that program will not satisfy the distribution requirement.

Group A: Creative Arts and Humanities 6  
Understanding and appreciation of the visual and performing arts, of aesthetic forms, designs, or craftsmanship, or of literary, philosophical, and intellectual traditions. Courses may focus on a single aesthetic form or intellectual tradition, or cross-cultural comparisons.

Group B: History and Cultural Change 6  
Understanding of the sources and forces of historical changes in ideas, beliefs, institutions, and cultures. Courses may address social, cultural, intellectual, economic, technological, artistic, scientific, and political development, changes in a discipline, or globalization and its effects.

Group C: Social and Behavioral Sciences 6  
Understanding of the behavior of individuals and social groups in the context of their human and natural environments. Courses emphasize the empirical findings, applications, and methods of the social and behavioral sciences.

Group D: Mathematics, Natural Sciences and Technology 7  
Understanding of fundamental and/or applied concepts and phenomena from mathematics, logic, natural or physical sciences, and technology including quantitative reasoning and methods used to approach and solve problems.

Courses taken to fulfill this category (university and college breadth) must include a minimum of one course with an associated laboratory

### MAJOR REQUIREMENTS:

GEOL 105/GEOL 115 Geologic Hazards and their Human Impact and Laboratory 4  
GEOL 107 General Geology 4  
GEOL 300 Earth's Materials I: Minerals 4  
GEOL 303 Earth's Surface I: Surficial Processes 4  
GEOL 306 Earth's Lithosphere II: Field Geology 4  
GEOG 101 Physical Geography 3  
GEOG 220 Meteorology 3  
GEOG 235 Conservation of Natural Resources 3

One of the following

GEOG 343 Climatic Geomorphology 3  
or

GEOG 255 Applied Climatology 3

and  
PHYS 133

Introduction to Astronomy 4

PHYS 201/PHYS 202 Introductory Physics I  
and II 8

CHEM 103 General Chemistry 4

BISC 195 Biological Evolution 3

MATH 221 Calculus I 3

MAST 200 The Oceans 3

A grade of C- or better is required in BISC 195,  
MAST 200, PHYS 133, and SCEN 491 and all of  
the required EDUC, GEOG, and GEOL courses.

EDUC 413 Adolescent Development and  
Educational Psychology 4

EDUC 414 Teaching Exceptional  
Adolescents 3

EDUC 419 Diversity in Secondary  
Education 3

EDUC 420 Reading in the Content Area 1

EDUC 430 Classroom Management in  
Schools 1

EDUC 400 Student Teaching 9

SCEN 491 Teaching Science in Secondary  
Schools 4

To be eligible to student teach, Earth Science  
Education students must have an overall GPA  
of 2.50 with a GPA of 2.75 in BISC 195, MAST  
200, PHYS 133 and their geology and geography  
courses. They must also pass a teacher  
competency test as established by the University  
Council on Teacher Education. Students must  
consult with the teacher education program  
coordinator to obtain the student teaching  
application and other information concerning  
student teaching policies.

CREDITS TO TOTAL A MINIMUM OF 124

## **GEOLOGY (BS)**

### **CURRICULUM CREDITS**

These university-level, college-level and breadth  
requirements apply to all College of Earth,  
Ocean, and Environment Bachelor of Science  
Degrees.

### **UNIVERSITY REQUIREMENTS:**

ENGL 110 Critical Reading and Writing (minimum  
grade C-) 3

First Year Experience (FYE) 0-4

Breadth Requirements 12

Discovery Learning Experience (DLE) 3

Multi-cultural Courses 3

### **COLLEGE REQUIREMENTS:**

Second Writing Requirement  
(minimum grade of C-) 3

A second writing course involving significant  
writing experience including two papers with  
a combined minimum of 3,000 words to be  
submitted for extended faculty critique of both  
composition and content. This course must  
be taken after completion of 60 credit hours.  
Appropriate writing courses are designated on  
the registrar's course search page.

Foreign Language: Minimum grade of D-)  
0-12

Completion of the intermediate-level course  
(107 or 112 or 214) in an ancient or modern  
language. The number of credits needed and  
initial placement will depend on the number of  
years of high school study of foreign language.  
Students with four or more years of high school  
work in a single foreign language, or who have  
gained proficiency in a foreign language by other  
means, may attempt to fulfill the requirement  
in that language by taking an exemption  
examination through the Foreign Languages and  
Literatures Department.

### **COLLEGE BREADTH REQUIREMENTS:**

These requirements apply to all College of Earth,  
Ocean & Environment Bachelor of Arts degrees.  
College breadth courses when combined with  
University breadth courses must represent  
at least two departments or appropriate  
instructional units in each category.

If the grade earned is sufficient, a course may be  
applied toward more than one requirement (e.g.,  
breadth and major requirements), but the credits  
are counted only once toward the total credits  
for graduation. If all but one course in a group  
has been taken in one department or program,  
a course cross-listed with that program will not  
satisfy the distribution requirement.

Group A: Creative Arts and Humanities 3

Understanding and appreciation of the visual  
and performing arts, of aesthetic forms, designs,  
or craftsmanship, or of literary, philosophical,  
and intellectual traditions. Courses may focus on  
a single aesthetic form or intellectual tradition, or  
cross-cultural comparisons.

Group B: History and Cultural Change 3  
 Understanding of the sources and forces of historical changes in ideas, beliefs, institutions, and cultures. Courses may address social, cultural, intellectual, economic, technological, artistic, scientific, and political development, changes in a discipline, or globalization and its effects.

Group C: Social and Behavioral Sciences 3  
 Understanding of the behavior of individuals and social groups in the context of their human and natural environments. Courses emphasize the empirical findings, applications, and methods of the social and behavioral sciences.

**MAJOR REQUIREMENTS:**

One of the following:

GEOL 107 General Geology 4

or

GEOL 105/  
 GEOL 115 Geologic Hazards and their Human Impact and Laboratory 4

or

GEOL 113 Earth Science 4

and

GEOL 300 Earth's Materials I: Minerals 4

GEOL 302 Earth's Materials II: Rocks 4

GEOL 303 Earth's Surface I: Surficial Processes 4

GEOL 304 Earth's Surface II: Stratigraphy 4

GEOL 305 Earth Lithosphere I: Structural Geology and Plate Tectonics 4

GEOL 306 Earth's Lithosphere II: Field Geology 4

GEOL 307 Earth's History I: Paleobiology 4

GEOL 308 Earth's History II: Earth System Science 4

MATH 241/MATH 242 Analytic Geometry and Calculus A and B 8

CHEM 103/CHEM 104 General Chemistry 8

PHYS 201/PHYS 202 Introductory Physics I and II 8

Geology Electives 9-10

(GEOL 385 or any 400-level or other GEOL courses approved in writing by department, including field courses taken as transfer work) A minimum grade of C- is required for any GEOL courses that count for the major.

Two of the following: 6-8

GEOG 250 Computer Methods in Geography  
 GEOG 372 Geographic Information Systems  
 GEOG 471 Advanced Geographic Information Systems

FREC 480 Geographic Information Systems in Natural Resource Management

MATH 243 Analytic Geometry and Calculus C

MATH 302 Ordinary Differential Equations or other courses as approved in writing.

**ELECTIVES**

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

**B.S. in Geology with Paleobiology Concentration**

CURRICULUM CREDITS

Students must complete the university and college level requirements for the Bachelor of Science in Geology.

**MAJOR REQUIREMENTS**

One of the following:

GEOL 107 General Geology 4

or

GEOL 105/GEOL 115 Geologic Hazards and their Human Impact and Laboratory (GEOL105 and GEOL115 must be taken concurrently) 4

or

GEOL 113 Earth Science 4

and

GEOL 300 Earth's Materials I: Minerals 4

GEOL 302 Earth's Materials II: Rocks 4

GEOL 303 Earth's Surface I: Surficial Processes 4

GEOL 304 Earth's Surface II: Stratigraphy 4

GEOL 305 Earth Lithosphere I: Structural Geology and Plate Tectonics 4

GEOL 306 Earth's Lithosphere II: Field Geology 4

GEOL 307 Earth's History I: Paleobiology 4

GEOL 308 Earth's History II: Earth System Science 4

GEOL 405 Introduction to Research 3

Geology Electives 6

GEOL 385 or any 400-level GEOL or other GEOL courses approved in writing by the department, including field courses taken as transfer work.

BISC 207 Introductory Biology I and II 4

BISC 208	Introductory Biology II	4
BISC 495	Evolution	3
CHEM 103	General Chemistry I	4
CHEM 104	General Chemistry II	4

One of the following

BISC 302	General Ecology	3
BISC 321	Environmental Biology	3

Two of the following

BISC 300	Introduction to Microbiology	4
BISC 303	Genetic and Evolutionary Biology	4
BISC 480	Vertebrate Natural History	4

One of the following

MATH 210	Discrete Mathematics I	3
MATH 230	Finite Mathematics with Applications	3
MATH 241	Analytic Geometry and Calculus A	4
MATH 205	Statistical Methods	4

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirements for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

#### **B.S. in Geology with Coastal and Marine Geoscience Concentration**

##### CURRICULUM CREDITS

Students must complete the university and college level requirements for the Bachelor of Science in Geology.

Major Requirements:

One of the following

GEOL 107	General Geology	4
or		
GEOL 105/GEOL 115	Geologic Hazards and their Human Impact and Laboratory	4
or		
GEOL 113	Earth Science	4

and

GEOL 300	Earth's Materials I: Minerals	4
GEOL 302	Earth's Materials II: Rocks	4
GEOL 303	Earth's Surface I: Surficial Processes	4
GEOL 304	Earth's Surface II: Stratigraphy	4
GEOL 305	Earth Lithosphere I: Structural Geology and Plate Tectonics	4

GEOL 306	Earth's Lithosphere II: Field Geology	4
GEOL 307	Earth's History I: Paleobiology	4
GEOL 308	Earth's History II: Earth System Science	4
GEOL 431	Marine Geology	3
GEOL 434/634	Geology of Coasts	3

BISC 207	Introductory Biology I	4
BISC 208	Introductory Biology II	4
CHEM 103	General Chemistry I	4
CHEM 104	General Chemistry II	4
MAST/ENWC 314	Comparative Terrestrial and Marine Ecology	3
MATH 241	Analytic Geometry and Calculus A	4
MATH 242	Analytic Geometry and Calculus B	4
MAST 482	Introduction to Ocean Sciences	3
PHYS 201	Introductory Physics I	4
PHYS 202	Introductory Physics II	4

Six credits from the following list of courses or any other courses approved in writing by the Department

MAST 366 or 466	Independent Study(6 credit maximum only by prior instructor approval)	6
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MAST 464	Marine Science Summer Internship	3
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or

MAST 468	Undergraduate Research (min 3 credits)	3
MAST 402/602	Physical Oceanography	3
MAST 606	Ocean and Atmosphere Remote Sensing	3
MAST 427/627	Marine Biology	3
MAST 437/637	Geological Oceanography	3
MAST 646	Chemical Oceanography	3
GEOG 681/MAST 681	Remote Sensing of Environment	3

or any other courses approved in writing by the Department

CREDITS TO TOTAL A MINIMUM OF 125

##### MINOR IN GEOLOGY

The minor consists of at least 18 credit hours in geology.

The requirements are:

GEOL 107	General Geology	4
or		

GEOL 105/GEOL115           4  
or  
GEOL 113      Earth Science   4

plus additional GEOL courses at the 300-400-level to obtain the remaining credits to reach a total of 18.

#### MINOR IN COASTAL AND MARINE GEOSCIENCE

A minimum of 18 credits of course work in Coastal and Marine Geoscience must be completed for a minor.

The following courses are required (within the stated options); others can be added to obtain additional credits in related disciplines.

#### CURRICULUM CREDITS

GEOL 107      General Geology       4  
or  
GEOL 105/GEOL 115    Geological Hazards    4  
or  
GEOL 113      Earth Science    4

At least one full-year sequence of 300-level GEOL courses:

GEOL300-302  
GEOL303-304  
GEOL305-306 or  
GEOL307-308   8

MAST 482      Introduction to Ocean Sciences 3  
GEOL 431      Marine Geology       3

Total Credits   18

## College of Education and Human Development

### College of Education and Human Development

The undergraduate programs of the College of Education and Human Development prepare students to enhance human development across the life span, to strengthen educational policies and practices, and to encourage effective policies and management in public, private and nonprofit organizations.

The College of Education and Human Development offers undergraduate degree programs through the School of Education and Department of Human Development and Family Studies. In addition, five minors: Disabilities Studies, Educational Studies, Educational Technology, Human Development and Family Studies, and Urban Education.

### Advisement and Academic Enrichment Opportunities

The College of Education and Human Development is committed to students' success and provides the resources and support services that will enable students to fully participate in the opportunities available throughout their undergraduate years. Undergraduates have an unequalled opportunity to gain valuable practical experience that complements their academic studies by participating in internships and practicum experience in schools as well as projects through the College of Education and Human Development's public service and research centers. The College of Education and Human Development also promotes opportunities for students to enhance their undergraduate experience through the Dean's Scholars Program; the College of Education and Human Development Summer Scholars Program; service, leadership and mentoring experiences; undergraduate research; and study abroad opportunities. Most academic areas offer an Honors degree including research opportunities leading to a senior thesis for the Honors Degree with Distinction or the Degree with Distinction.

The College of Education and Human Development's Office of Student Support Services coordinates orientation activities for new students, supports academic advisement, administers academic policy, and maintains students' records. Students with academic questions or concerns, those interested in

becoming involved in special opportunities available to College of Education and Human Development students, and those experiencing academic difficulties are all encouraged to contact their assigned faculty or professional advisor. For additional assistance and information, College of Education and Human Development students are welcome to contact the College of Education and Human Development Office of Student Support Services, 105 Pearson Hall, (302) 831-2301 or email [cepps@udel.edu](mailto:cepps@udel.edu).

### Dean's Scholar Program

The Dean's Scholar Program exists to serve the needs of students whose clearly defined educational goals cannot be effectively achieved by pursuing the standard curricula for all existing majors, minors, and interdepartmental majors sponsored by the University. Driven by an overarching passion or curiosity that transcends typical disciplinary bounds and curricula, a Dean's Scholar's intellectual interests may lead to broad interdisciplinary explorations of an issue or to more intense, in-depth studies in a single field at a level akin to graduate work. In consultation with faculty advisors and the Associate or Assistant Dean of their college, Dean's Scholars design an imaginative and rigorous individual plan of study to meet the total credit hours required for graduation. Contact the Assistant/Associate Dean in the college or go to [www.udel.edu/deansscholar](http://www.udel.edu/deansscholar) for more information and the application.

### Teacher Education Programs

Responsibility for the coordination of the teacher education programs rests with the University Council on Teacher Education (UCTE). Teacher education programs in specific areas are administered by the Colleges of Agriculture and Natural Resources; Arts and Sciences; Health Sciences; Education and Human Development; Earth, Ocean, and Environment, and Alfred Lerner College of Business and Economics. For more information on teacher education programs, students who wish to prepare themselves to be certified teachers should consult the teacher education web site at [www.udel.edu/teachered](http://www.udel.edu/teachered) or the faculty advisor for the specific area of certification sought, as follows: (all telephone numbers are area code 302)

## **COLLEGE OF AGRICULTURE AND NATURAL RESOURCES**

Agricultural Education  
General Information  
Dr. Patricia Barber  
831-4232  
pbarber@udel.edu

Student Teaching  
Dr. Arba Henry  
831-1320  
alhenry@udel.edu

## **COLLEGE OF ARTS AND SCIENCES**

English Education  
Student Teaching  
Dr. Deborah Alvarez  
831-2297  
dmalva@udel.edu

General Information  
Dr. Deborah Bieler  
831-1973  
deb@udel.edu

Foreign Languages (French Education, German Education, Italian Education, Latin Education, Spanish Education)  
Student Teaching  
Dr. Bonnie Robb  
831-6141  
brobb@udel.edu

Advisement  
Dr. Cynthia Lees  
831-2595  
clees@udel.edu

Mathematics Education  
Dr. Alfinio Flores  
831-1864  
alfinio@math.udel.edu

Music (Music Education/Instrumental, Music Education/Choral-General)  
<http://music.udel.edu/musiced>  
Dr. Suzanne Burton  
831-0390  
slburton@udel.edu

Social Studies (Anthropology Education, History Education, Political Science Education, Psychology Education, Sociology Education)  
[www.udel.edu/socialstudiesed](http://www.udel.edu/socialstudiesed)

Dr. Barry Joyce  
831-2860  
bjoyce@udel.edu

Dr. Hannah Kim  
831-8226  
hkim@udel.edu

Sciences (Biology Education, Chemistry Education, Physics Education)  
Program Coordinator  
Dr. Kathryn Scantlebury  
831-4546  
kscantle@udel.edu

Biology Education  
Dr. Barbara Butler  
831-8467  
bmbutler@udel.edu

Chemistry and Physics Education  
Dr. Kathryn Scantlebury  
831-4546  
kscantle@udel.edu

## **ALFRED LERNER COLLEGE OF BUSINESS AND ECONOMICS**

Social Studies (Economics Education)  
Dr. Barry Joyce  
831-2860  
bjoyce@udel.edu

## **COLLEGE OF HEALTH SCIENCES**

Health and Physical Education  
Dr. Janice Bibik  
831-3537  
pirwet@udel.edu

## **COLLEGE OF EDUCATION AND HUMAN DEVELOPMENT**

Elementary Teacher Education (In addition to Elementary Education, students select a second certification field in special education, middle school English, middle school Mathematics, middle school Science, middle school Social Studies or a concentration in Urban Education)  
Ms. Vickie Lucas  
831-2317  
vickie@udel.edu

Early Childhood Education (Early Childhood Education and Early Childhood Special Education)  
Dr. Lynn Worden  
831-6500  
worden@udel.edu

## **COLLEGE OF EARTH, OCEAN, AND ENVIRONMENT**

Social studies (Geography Education)  
Dr. Barry Joyce  
831-2860  
bjoyce@udel.edu

Earth Science  
Dr. John Madsen  
831-1608  
jmadsen@udel.edu

In all its teacher education programs, the University of Delaware is guided by a unified conceptual framework. Programs aim to develop teachers who are reflective practitioners serving diverse communities of learners as scholars, problem solvers, and partners. While the specific course requirements in the programs vary widely, they all support the conceptual framework and outcomes. All University of Delaware teacher education programs have a general education component of liberal studies, a major field or discipline component in the teaching field, and a professional education component of formal study in the educational foundation disciplines and clinical studies of curriculum design and instructional strategies. In addition, all teacher education students benefit from early and graduated “hands on” experiential and instructional opportunities in schools. Information on the University of Delaware’s Title II Higher Education Act can be obtained at: [www.udel.edu/teachered](http://www.udel.edu/teachered) or by calling 302-831-3000.

## **FIELD EXPERIENCES**

(INCLUDING STUDENT TEACHING) are required of all students who wish to obtain an undergraduate degree in teacher education. To participate in the field experiences, including student teaching, students must satisfy their program’s course prerequisites, meet minimum GPA requirements, pass required competency tests, and satisfy other criteria as designated by their program, e.g., testing for

tuberculosis, criminal background check, child abuse clearance, etc. Consult the appropriate teacher education program advisor (see the list of advisors for teacher education programs above) for the exact GPA requirements and other policies concerning qualifications for field experiences. Applications for student teaching must be submitted and approved prior to the student teaching semester. Deadlines, prerequisites, corequisites, and procedures for submitting applications for student teaching are published each year on the Office of Clinical Studies’ website.

## **CERTIFICATION**

The professional education unit of the University of Delaware is accredited by the National Council for the Accreditation of Teacher Education (NCATE). The individual teacher education programs have received State Approved Program status and have been recognized by national specialty organizations as having met their standards. Students who complete a University of Delaware Approved Teacher Education Program and who demonstrate competency in the appropriate academic content knowledge by taking the Praxis II test required by the State of Delaware for certification receive an institutional recommendation for teacher certification. Upon receiving the University’s recommendation, students must apply for certification through the individual state’s Department of Education. Most states require that students pass a standardized test to qualify for teacher certification. The Delaware Center for Teacher Education has information available to students on the testing requirements and the certification procedures.

## **DELAWARE CENTER FOR TEACHER EDUCATION**

The Delaware Center for Teacher Education (DCTE) strengthens both pre-service and in-service teacher education, improves access for the education community to the University’s teacher education and professional development programs, and supports the state’s efforts to enhance teacher and professional development in line with state content standards and accountability requirements. For further information about DCTE generally, call (302) 831-3000 or visit the web site at [www.udel.edu/dcte/](http://www.udel.edu/dcte/).

Of the programs and services within DCTE,

the following are of particular interest to undergraduates.

The ASPIRE program encourages students from underrepresented groups to pursue a career in teaching. In addition to recruiting qualified applicants, ASPIRE provides students in all the University's teacher education programs with academic support, if needed, and professional development activities. For more information, call 831-3000 or email [mware@udel.edu](mailto:mware@udel.edu).

Project SMART recruits student to teach mathematics or science in high needs secondary schools, Project SMART engages math and science teacher education candidates in a variety of activities aimed at developing their content knowledge, pedagogical content knowledge and professional knowledge and skills. Candidates participate in a carefully planned sequence of field, clinical, and research experiences. For more information, call 831-1641 or email [kmelvin@udel.edu](mailto:kmelvin@udel.edu).

The Education Resource Center (ERC) is a multimedia, special purpose curriculum materials center that provides both circulating and reserve collections for use by teachers, students, and administrators. The ERC operates a Book Examination Site, receiving review copies of newly released books for youth from over 100 publishers. It also houses a site of the Delaware Teacher Center for constructing learning materials for use in classrooms with K-12 students. In addition, the Resource Center coordinates the school library media specialist program. For further information, call (302) 831-2335 or visit the website at: <http://www.erc.udel.edu>.

The Office of Clinical Studies assists faculty in implementing a program of field-based professional practice that includes several sequential phases of increasing involvement and responsibility and in placing students in appropriate clinical settings. For further information, call (302) 831-2319 or e-mail [hartmanj@udel.edu](mailto:hartmanj@udel.edu).

### **Discovery- and Service-Based Learning Opportunities and Clinical Experiences**

As a professional, service-oriented college, the College of Education and Human Development stresses opportunities for learning through experiences that require students to apply

their academic training and encourage them to develop their newly acquired skills and knowledge. The College of Education and Human Development has a unique combination of facilities that provide a wide range of practical experience settings, and the College of Education and Human Development offers special programs that encourage personal and professional development. Undergraduate students can also learn from valuable practical experience that complements their academic studies by working with faculty, staff and graduate students in the College of Education and Human Development's public service and research centers. The College of Education and Human Development receives funding from the Delaware General Assembly to support undergraduates who are working on projects that benefit the people of Delaware.

The following units offer special opportunities for undergraduate student participation:

The College School located at 461 Wyoming Road, provides a school-year program for children, grades 1-8, with learning differences. The school provides individualized and innovative instruction for children who have had unsuccessful school experiences, with the goal of returning these students to more traditional classroom settings within an average of two to three years. The College School also serves as a research and clinical site for students and faculty in Education, School Psychology, Clinical Psychology, Nursing, Physical Education, Nutrition, and many other disciplines. For further information: [www.udel.edu/collegeschool](http://www.udel.edu/collegeschool) or call (302) 831-0222.

The Legislative Fellows Program is a unique opportunity for especially qualified undergraduate and graduate students to work directly with members of the Delaware General Assembly. Fellows provide timely, nonpartisan research assistance on complex public policy issues while gaining a thorough knowledge of the legislative process that will be useful in a wide variety of careers. In addition, Fellows become acquainted with state and local elected officials, agency directors, business heads, and community leaders. Selected through a competitive process, Fellows work in Dover for twenty hours per week from January to June and earn a stipend. For more information, visit [www.ipa.udel.edu/legfellows](http://www.ipa.udel.edu/legfellows) or contact Lisa Moreland at (302) 831-4955 or e-mail [lisamk@udel.edu](mailto:lisamk@udel.edu).

Professional Development Schools provide professional training in teacher education much in the way teaching hospitals serve medical education. Elementary Teacher Education students in Milford, Delaware participate in an innovative teacher education program where they take classes in a Professional Development School that serves a rural population.

The University of Delaware Laboratory Preschool is a NAEYC accredited model preschool program, provides appropriate developmental programs for children with and without disabilities; teaches University students to work with young children through classroom practicum experiences; provides opportunities for students, faculty and professionals to observe exemplary preschool programs and teacher role models; enables students to observe children ages two through six so the students can better understand developmental progression; and provides a research site for students and faculty. For further information, contact Peg Bradley, director, at (302)831-2304 or e-mail: pbradley@udel.edu.

**THE COLLEGE OF EDUCATION AND HUMAN DEVELOPMENT UNDERGRADUATE INTERNSHIPS AND RESEARCH ASSISTANTSHIPS**

The College of Education and Human Development offers students many opportunities for public and community service research assistantships and internships through its research and public service units. Undergraduates are able to work closely with faculty, staff and graduate students on key issues involving children, families, schools, communities, the environment, consumers and service institutions, and public policies. The following College of Education and Human Development research and public service centers, profiled in detail in the chapter "Research Centers, Institutes, and Special Facilities," offer public and community research assistantships and internship opportunities:

- Center for Community Research and Service
- Center for Disabilities Studies
- Center for Historic Architecture and Design
- Delaware Center for Teacher Education
- Delaware Education Research and Development Center
- Early Learning Center
- English Language Institute
- Mathematics & Science Education Resource

Center  
- Office of Educational Technology

**Minor In Disabilities Studies**

The College of Education and Public Policy offers an interdisciplinary minor in Disabilities Studies which is open to students in any major. The minor in Disabilities Studies requires 18 credit hours, distributed as follows: all core courses listed below (9 credits) and three additional courses (9 credits) selected in consultation with and approved by the student's minor advisor. These courses shall be chosen from each of the following topic areas: Human Development, Social Systems, and Service Delivery Methods. At least one of these topic area courses must be from outside the requirements of the student's major and outside his or her major department. Additional course restrictions apply to students in the ETE major. All courses included in the minor must be completed with a grade of C- or better.

HDFS 270/SOCI 270	Families and Developmental Disabilities	3
EDUC 230	Introduction to Exceptional Children	3
HEPP 465	Senior Seminar in Disabilities Studies	3
Topic Area Courses (one course in each topic area)		9

Information regarding courses recommended in the topic areas and the procedures for completing the minor can be obtained from the Center for Disabilities Studies, [http://www.udel.edu/cds/disabilities\\_minor.html](http://www.udel.edu/cds/disabilities_minor.html)

**EDUCATION**

<http://www.udel.edu/education>  
Faculty Listing: <http://www.udel.edu/education/people.html>

The School of Education offers an undergraduate degree program in Elementary Teacher Education. The major includes an Honors Degree option. The School's exemplary teacher education and specialist programs produce skilled professional educators who are able to work with today's diverse learners. Through their coursework and field experiences, undergraduate teacher education candidates become skilled in developmentally and

educationally effective approaches to instruction. With reflective practice as a guiding principle, the School prepares candidates to become scholars who are grounded in the knowledge of their discipline and pedagogy, problem solvers who are able to design effective instruction and address challenges, and partners who can support the development of the children with whom they work.

**Program In Elementary Teacher Education**  
(INCLUDING MIDDLE SCHOOL, SPECIAL EDUCATION AND URBAN EDUCATION)

Telephone: (302) 831-2317

The Elementary Teacher Education Program is designed to help students meet the following goals:

1. become outstanding general elementary teachers, middle school teachers and teachers of exceptional children
2. develop a strong background in the academic subjects taught in the elementary level
3. gain the employment flexibility and security to become an elementary teacher with the possibility of also becoming a special education teacher or middle school teacher or developing an expertise in urban education.
4. provide all children, including those with special learning needs, with the best possible education

The program curriculum is designed to provide students with a range of practicum experiences in a variety of settings. These practicum experiences begin with observation and tutoring of children in the freshman year and culminate with student teaching in the senior year. These direct experiences in actual classroom settings give the teacher candidate important opportunities to apply the knowledge gained in college courses to his or her work with children and to gain critical on-the-job training.

The program is divided into three general areas.

The General Studies courses include the following subject areas: natural sciences, mathematics, social sciences, English/linguistics, and fine arts. A grade of C- or better is required in all of the courses in this area.

The Professional Studies courses are designed to develop the candidate's teaching skills.

The courses place strong emphasis on the development of teachers who can plan and implement appropriate educational experiences for children of varying levels of ability. A grade of C- or better is required in all of the courses in this area.

The Concentration courses provide the teacher candidate with an opportunity to select concentrations in the following areas: middle-school English, middle-school mathematics, middle-school science, middleschool social studies, special education and urban education. A list of the specific courses that comprise each of these areas is available in the School of Education's Office of Undergraduate Services. A grade of C- or better is required in all of the courses in this area.

**APPLICATION FOR UPPER DIVISION CLEARANCE IN TEACHER EDUCATION**

Students enrolled in the Elementary Teacher Education major wishing to begin upper-level work must apply and satisfy the requirements for Upper Division clearance.

The purpose of clearance is to assure that each student is satisfying requirements in the major and is prepared to undertake junior-level work including in-school clinical experiences. For further information about the clearance procedure, contact the Office of Undergraduate Services in the School of Education.

**ELEMENTARY TEACHER EDUCATION (BS)**

**CURRICULUM CREDITS**

**UNIVERSITY REQUIREMENTS**

ENGL 110	Critical Reading and Writing	3
(minimum grade C-)		
First Year Experience (FYE)	0-4	
Breadth Requirements	12	
Discovery Learning Experience (DLE)	3	
Multi-cultural Courses	3	

**MAJOR REQUIREMENTS**

Note: All students must complete General Studies and Professional Studies courses and a concentration.

**GENERAL STUDIES (45 credits)**

GEOL 113	Earth Science	4
SCEN 102	Physical Science	4
BISC 104	General Biology	4

or  
 BISC 207      Introductory Biology I      4

MATH 251      Mathematics for K-8 Teachers:  
 Number and Operations      3

MATH 252      Mathematics for K-8 Teachers:  
 Rational Numbers and  
 Probability      3

MATH 253      Mathematics for K-8 Teachers:  
 Geom., Algebra and Measurement      3

One of the following History courses: 3

HIST 103      World History I

HIST 104      World History II

HIST 205      United States History

HIST 206      United States History

One of the following Geography courses:      3

GEOG 102      Human Geography

GEOG 120      World Regional Geography

GEOG 203      Introduction to Cultural  
 Geography

GEOG 210      Economic Geography

POSC 150      American Political System

or

POSC 102      Civics and Economics for  
 Teachers      3

(If ECON 102 is not taken below)

ECON 100      Economic Issues and Policies

or

ECON 151      Introduction to Microeconomics

or

ECON 102      Civics and Economics for  
 Teachers      3

(If POSC 102 is not taken above)

LING 101      Introduction to Linguistics      3

One of the following literature courses:      3

Students in the Middle School English  
 concentration:

ENGL 101      Tools of Textual Analysis

Students not in the Middle School English  
 concentration:

ENGL 202      Biblical and Classical Literature

ENGL 280      Approaches to Literature for Non-  
 Majors

ENGL 281      British Literature to 1700 for Non-  
 Majors

ENGL 282      British Literature 1700-Present for  
 Non-Majors

ENGL 283      American Literature for Non-  
 Majors

ENGL 284      Shakespeare for Non-Majors

ENGL 285      Introduction to Poetry for Non-  
 Majors

ENGL 286      Introduction to Drama for Non-  
 Majors

ENGL 287      Introduction to Short Story for  
 Non-Majors

ENGL 288      Introduction to Novel for Non-  
 Majors

ENGL 289      Studies in Film for Non-  
 Majors

ENGL 290      Studies in Literature for Non-  
 Majors

Art, Art History, Dance, Music, Music Education  
 or Theater      3

PROFESSIONAL STUDIES (47 credits)

EDUC 100      Introduction to Elementary and  
 Middle School Education      1  
 (Satisfies First Year Experience)

EDUC 205      Human Development: Grades  
 K-8      3

EDUC 210      Beginning Literacy Instruction 3

EDUC 230      Introduction to Exceptional  
 Children      3

EDUC 240      Legal and Ethical Issues in  
 American Education

or

EDUC 247      The History of Education in  
 America      3

EDUC 258      Cultural Diversity, Schooling and  
 the Teacher

or

EDUC 259      Cultural Diversity in Community  
 Contexts      3

EDUC 286      Educational Technology:  
 Professional Tools      1

EDUC 310      Reading and Writing in  
 Elementary School      3

EDUC 335      Elementary Curriculum:  
 Mathematics      3

EDUC 341      Elementary Curriculum:  
 Science      3

EDUC 346      Elementary Curriculum: Social  
 Studies      3

EDUC 387      Integrating Technology in  
 Education      2

EDUC 390      Classroom Management for  
 Social and Emotional  
 Learning      3

EDUC 400      Student Teaching: Elementary  
 Education      5

EDUC 433      Non-school Factors Affecting  
 Learning in the Classroom

EDUC 436      Literacy Problems: Assessment  
 and Instruction

or

EDUC 437 Diagnosis and Instruction:  
Literacy 3  
(Special Education concentration only)  
EDUC 451 Educational Assessment for  
Classroom Teachers 3

### CONCENTRATIONS

#### Middle School English

ENGL 294 English Language: Grammar and  
Usage 3  
EDUC 403/ENGL 403 Literature for Adolescents:  
Multimedia Texts 3  
ENGL 204 American Literature 3  
ENGL 205 British Literature I 3  
ENGL 206 British Literature II 3  
Writing course 3  
ENGL Diversity elective 3  
EDUC 320 Reading and Writing in the Middle  
Grades 3  
EDUC 400 Student Teaching: Middle-School  
English 5

TOTAL CREDITS IN THE MAJOR WITH MIDDLE  
SCHOOL ENGLISH 121

#### Middle School Mathematics

MATH 221 Calculus I  
or  
Math 241 Analytic Geometry and  
Calculus A 3-4  
MATH 222 Calculus II  
or  
Math 242 Analytic Geometry and  
Calculus B 3-4  
MATH 210 Discrete Mathematics 3  
MATH 230 Finite Math with Applications 3  
STAT 200 Basic Statistical Practice 3  
or  
MATH 201 Introduction to Statistical  
Methods I  
MATH 240 Geometry and Measurement for  
Middle School Teachers 3  
MATH 217 Algebra for Middle School  
Teachers 3  
EDUC 336 Middle School Mathematics  
Curriculum and Methods 3  
EDUC 400 Student Teaching: Middle School  
Mathematics 5

TOTAL CREDITS IN THE MAJOR WITH MIDDLE  
SCHOOL MATHEMATICS 121-123

#### Middle School Science

Biology courses 6  
Physical science courses 6  
Earth science course 3  
SCEN 650\* (will substitute for one of the  
above) (3)

Environmental science course 3  
EDUC 443 Teaching Science in the Middle  
School 3  
EDUC 400 Student Teaching: Middle School  
Science 5

Free elective from any department 3  
SCEN 650\* is required, and will substitute for 3  
credits in one of the following areas, depending  
on the course content for a particular semester:  
Earth Science, Biology, or Physical Science. A list  
of approved courses can be obtained from an  
advisor in 120 Willard Hall.

TOTAL CREDITS IN THE MAJOR WITH MIDDLE  
SCHOOL SCIENCE 121

#### Middle School Social Studies

US History 205 or US History 206  
or  
World History 103 or World History 104 3  
(whichever was not taken for General Studies)

POSC 240 Introduction to International  
Relations

or

POSC 270 Comparative Politics 3

Economics elective\* 3

Geography elective\* 3

History, Geography, Political Science or  
Economics\* 6

(\*Six of the above 12 credits must be at the 300  
level or higher.)

EDUC 348 Investigating Social Studies in  
Middle School Communities 3

EDUC 400 Student Teaching: Middle School  
Social Studies 5

Free elective from any department 3

TOTAL CREDITS IN THE MAJOR WITH MIDDLE  
SCHOOL SOCIAL STUDIES 121

#### Special Education

EDUC 410 Assistive Technology 1

EDUC 431 Applied Behavior Analysis 3

EDUC 432 Curriculum for School-aged  
Exceptional Children 3

EDUC 435 Educational Evaluation for  
Exceptional Children 3

EDUC 400 Student Teaching: Special  
Education 5

In addition, students will be required to complete  
the Disabilities Studies Minor (15 credits) or 15  
credits in the areas of English, Mathematics,  
Science, Social Studies, or Urban Education. See  
list of courses in 120 Willard Hall.

TOTAL CREDITS FOR K-6 IN THE MAJOR WITH  
SPECIAL EDUCATION 122

Urban Education  
EDUC 258 Cultural Diversity, Schooling and  
the Teacher 3

or  
EDUC 259 Cultural Diversity in Community  
Contexts 3

(whichever was not taken for Professional  
Studies)

EDUC 395 Building Communities of  
Learners in Urban Contexts 3

EDUC 440 Literacy Instruction for English  
Language Learners 3

EDUC 459 Urban Schools and Urban  
Landscapes 3

Three restricted electives that reflect students'  
particular interest in urban  
education. Courses must be approved by  
advisor. 9

Free elective from any department 3  
EDUC 400 Student Teaching: Urban  
Education 5

**TOTAL CREDITS IN THE MAJOR WITH URBAN  
EDUCATION 121**

#### Praxis Test Requirements

Praxis I: Passing scores on all three sub-tests  
of the Praxis I test (reading, writing, and  
mathematics) are required prior to enrollment  
in upper division professional education  
coursework.

Praxis II: Proof of having taken an appropriate  
Praxis II test for each area in which teacher  
candidates plan to pursue certification. A copy  
of the official score report must be submitted to  
the Delaware Center for Teacher Education during  
enrollment in EDUC 400 Student Teaching or no  
later than November 1 for January graduates  
and May 1 for June or summer graduates. An  
institutional recommendation for certification  
will not be issued until the candidate has  
presented the official score report.

### **HONORS ELEMENTARY TEACHER EDUCATION (BS)**

The recipient must complete:

1. All requirements for the Bachelor of Science  
degree in Elementary Teacher Education.
2. All the University's generic requirements for  
the Honors Baccalaureate Degree.

### **SOUTHERN DELAWARE ELEMENTARY TEACHER EDUCATION/SPECIAL EDUCATION (BS)**

University and major requirements are the same  
as for the Elementary Teacher Education program  
except the students must pursue the Special  
Education Concentration. In addition, students  
must complete 15 credits in an integrated  
discipline area rather than a single discipline  
area for the concentration. This program also  
includes more K-6 school-based requirements  
that are designed in cooperation with the  
Milford School District. All requirements for  
this program may be met at the University of  
Delaware campus in Georgetown and the Milford  
Professional Development School located on  
the grounds of the Milford School District. For  
additional information, please contact Laurie  
Palmer at (302) 424-6461.

### **ASSOCIATE IN ARTS DEGREE IN EDUCATION**

The Associate in Arts (AA) in Education degree  
is designed for students enrolled in Georgetown  
who have an interest in elementary education.  
This degree includes the General Studies  
courses and EDUC 100, EDUC 205, EDUC 210,  
EDUC 230, EDUC 240/EDUC 247, EDUC 258/EDUC  
259 and EDUC 286 in the Elementary Teacher  
Education program. Upon successful completion  
of this degree and passing the Praxis I exam,  
students wishing to complete their BSED degree  
may apply for admission to the UD/Milford  
Professional Development School located at 310  
Lovers Lane, Milford, DE 19963 or transfer to the  
ETE program in Newark. Information regarding  
admission requirements may be found in the  
Undergraduate Admission section of this catalog.  
Academic advisement is available in Suite 172  
of the Jason Technology Center in Georgetown  
or by contacting Laurie Palmer at the UD/Milford  
PDS at (302) 424-6461.

### **MINOR IN EDUCATIONAL STUDIES**

The Educational Studies minor provides students  
with a broad understanding of education, both  
inside and outside schools. The minor requires  
the 18 credits listed below. A grade of C- or better  
is required in all courses.

EDUC 240 Legal and Ethical Issues in  
American Education 3

EDUC 247 The History of Education in  
America 3

EDUC 205 Human Development:  
Grades K-8 3

EDUC 230	Introduction to Exceptional Children	
or		
EDUC 414	Teaching Exceptional Adolescents	3
EDUC 258	Cultural Diversity, Schooling, and the Teacher	
or		
EDUC 259	Cultural Diversity in Community Contexts	
or		
EDUC 419	Diversity in Secondary Education	3
or		
EDUC 459	Urban Schools and Urban Landscapes	
EDUC 470	Topics in Education	3
Total Credits		18

#### MINOR IN EDUCATIONAL TECHNOLOGY

Learning how to use technology to improve results has become strategically important across all sectors of education and training. Therefore, this Minor in Educational Technology is open to all students in any University bachelor's degree program by completing the courses listed below. This coursework provides students with a theoretical grounding and practical experience using technology to improve teaching and learning in real-world situations. Although the courses are technologically rich, they extend beyond tools by immersing students in the knowledge base of researched best practices for improving results. In the service-learning capstone course, students form teams to develop a solution to a real-world educational problem in a local school or workplace. By the end of the Minor, students will have created a Web portfolio demonstrating the manner in which they meet the national educational technology standards. In order to be eligible to add the Minor, students must have completed 28 credits at the University of Delaware.

Required Courses		12
EDUC 411	Introduction to Educational Technology	3
EDUC 421	Internet Technologies	3
EDUC 469	eLearning	3
EDUC 492	Educational Technology Capstone	3
Electives (2)		6
EDUC 438	Learning Technologies Across the Curriculum	3

EDUC 450	Technology and Cognition	3
EDUC 485	Multimedia Literacy	3
EDUC 439	Special Topics in Educational Technology	3
TOTAL CREDITS		18

#### MINOR IN URBAN EDUCATION

The minor in Urban Education provides students with the opportunity to engage deeply in urban education issues within their particular professional interests. Please note that completion of the minor does not lead to teacher certification. A minimum grade of C- is required in all courses.

EDUC 258	Cultural Diversity, Schooling and the Teacher	
or		
EDUC 259	Cultural Diversity in Community Contexts	
or		
EDUC 419	Diversity in Secondary Education	3
EDUC 395	Building Communities of Learners in Urban Contexts	3
EDUC 440	Literacy Instruction for English Language Learners	3
EDUC 459	Urban Schools and Urban Landscapes	3

Select two courses from the list below		6
BAMS 110	Introduction to Black American Studies	
BAMS 204/SOCI 204	Urban Communities	
BAMS 205	Contemporary Afro-American Issues	
BAMS 215/SOCI 215	Race in Society	
BAMS 415/SOCI 415	Race, Class and Gender	
GEOG 325	Urban Geography	
GEOG 346	Urban Cultural Geography	
HDFS 202	Foundations of Family Studies	
HDFS 230	Families and their Communities	
POSC 355	Urban Politics and Community Development	
POSC 452	Urban Issues and Policy Analysis	
SOCI 305	Social Class and Inequality	
TOTAL CREDITS		18

#### Human Development and Family Studies

Telephone: (302) 831-6500  
<http://www.hdfs.udel.edu>  
<http://www.hdfsudel.edu/content/faculty>

The Department of Human Development and Family Studies offers undergraduate majors in Early Childhood Education, and in Human Services, both with Honors Degree options. The Department also offers a minor in Human Development and Family Studies. Students in the Human Services Major may apply, during the Sophomore or Junior Year, for admission into the Accelerated HDFS Masters Program. The curricula prepare students for challenging careers with individuals and families throughout the lifespan. Graduates become leaders in early education, family support, and human service programs, with many students pursuing advanced study.

The major in Early Childhood Education is designed for students who plan on working with children in a variety of educational settings, including schools, preschools, early care and education and home-based programs. The Early Childhood Education major prepares undergraduate students to educate young children in inclusive settings. Students who graduate from this approved early childhood program meet the requirements of the state of Delaware to be certified birth through second grade in both early childhood education and early childhood special education. The program emphasizes developmentally appropriate, family-centered practices to meet the needs of all children, including those with disabilities.

Students in the Human Services major are required to choose one of two concentrations. The Clinical Services Concentration is designed for students wishing to work within public and private agencies serving clients, infants through the aged, and their families. Combining course work and clinical experiences, the program of study prepares graduates for positions in direct client services and developing quality programs for individuals and families. Students are also prepared to pursue graduate degrees in careers addressing the needs of individuals and their families, such as in community and school counseling, family therapy, and social work.

The Administration and Family Policy Concentration is designed for students with interests in developing and administering human service programs, as well as making societal changes through advocacy and social policy. Students are prepared to pursue graduate degrees in such areas as public administration, community development and community psychology, family policy and family studies,

family law, and social work.

Selection and retention policies for the Early Childhood Education, and Human Services majors have been established and must be followed. Students are responsible for travel arrangements and costs for clinical/internship experiences.

Students in the Human Services major may apply, during their Sophomore or Junior year, for admission into the Accelerated HDFS Masters Program. Application to the Accelerated Program can be made for Masters of Arts Program in Human Development and Family Studies. Students may pursue a concentration in human services management, early childhood development and education, or youth development.

Procedures: Prior to, or during the Junior year, complete an application for the HDFS Masters Accelerated program, and submit the application to the HDFS Graduate Coordinator. Application and qualifications for admission can be found on the HDFS website. <http://www.hdfs.udel.edu>

## **EARLY CHILDHOOD EDUCATION (BS)**

### **CURRICULUM CREDITS**

#### **UNIVERSITY REQUIREMENTS**

ENGL 110 Critical Reading and Writing 3  
(minimum grade C-)

First Year Experience (FYE) 0-4

Breadth Requirement 12

Discovery Learning Experience (DLE) 3

Multi-cultural Courses 3

Some University requirements may be met by your major requirements.

See your advisor for a planning guide.

#### **MAJOR REQUIREMENTS CREDITS**

English Literature course (see HDFS department for approved list) 3

Second Writing Course (chosen from courses satisfying the Arts & Sciences Second Writing Requirement. This requirement may be fulfilled through a course taken to complete other course requirements.) 3

Creative Arts and Humanities or Foreign Language course (including: CHIN, FREN, GREK, GRMN, HEBR, ITAL, JAPN, LATN, PORT, RUSS, SPAN) if Creative Arts and Humanities requirement is fulfilled by English Literature

course)	3	
LING 101	Introduction to Linguistics	3
PSYC 100	General Psychology	
or		
Sociology Course		3
History and Cultural Change		6
Social and Behavioral Science		3
BISC 105	Human Heredity and Development	3
Additional two 4-credit courses from Mathematics, Natural Sciences, and Technology w/labs 8		
MATH 251	K-8 Math: Numbers and Operations	3
(C- or better required)		
MATH 252	K-8 Math: Rationals and Probability	
or		
MATH 253	K-8 Math: Geom., Alg., and Measurement	3
Focused Elective (See HDFS Department for List of Approved Courses) 3		
HDFS 201	Life Span Development	3
HDFS 202	Foundations of Family Studies	3
(fulfills University multicultural requirement)		
HDFS 220	Child Development I: Prenatal to Age 3	3
HDFS 221	Child Development II: 3-8 years	3
HDFS 222	Inclusive Curriculum: Birth to Grade 2	3
HDFS 224	Practicum in Inclusive Curriculum: Birth to Grade 2	3
HDFS 406	Supporting Literacy in ECE	3
HDFS 350	Technology & Assistive Technology in Early Childhood Educ.	3
HDFS 355	Professional Issues in ECDE	3
HDFS 411	Inclusive Curriculum: Birth - Preschool	3
HDFS 412	Inclusive Curriculum: Preschool - Kindergarten	3
HDFS 413	Inclusive Curriculum: Kindergarten - Grade 2	3
HDFS 414	Classroom Management/ Guidance and Behavior Support	3
HDFS 431	Field Experience: Birth to Preschool	1
HDFS 432	Field Experience: Preschool - Kindergarten	2
HDFS 433	Field Experience: Kindergarten - Grade 2	1
HDFS 435	Programs for Children with Exceptionalities	3

HDFS 445	Family, School, and Community Partnerships	3
HDFS 452	Assessment of Children	3
HDFS 470	Families and Children at Risk	3
HDFS 480	Student Teaching Seminar	2
EDUC 400	Student Teaching 1 (Fulfills University DLE requirement)	2
Prerequisites for EDUC 400 Student Teaching: a GPA 2.50 and a major field index of 2.75 (Information on courses designated in major field is available from Department Office) and a minimum grade of C- in all HDFS courses.		

#### Praxis Test Requirements

ECE students must complete the following Praxis test requirements:

Praxis I: Passing scores on the Praxis I test, all three subtests (reading, passing score = 175; writing, passing score = 173; and mathematics, passing score = 174), prior to enrollment in HDFS 412.

Praxis II: Proof of having taken an appropriate academic CONTENT area test (e.g. Praxis II in Elementary Content Knowledge or Fundamental Subject Area Test) or a state-designated academic content knowledge test (e.g. New York State test in the appropriate area, like the Elementary Multiple Subjects Test). A copy of the Official score report must be submitted to the Delaware Center for the Teacher Education, 200 Academy Street, during enrollment in EDUC 400 Student Teaching or no later than November 1 for January graduates and May 1 for June or summer graduates. An institutional recommendation for certification will not be issued until the candidate has presented the official score report.

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credits required for the degree.

Only four credits of Music ensemble and four credits of 100-200 level courses in Military Science/ Army ROTC may be counted toward the degree.

CREDITS TO TOTAL A MINIMUM OF 124

## HONORS- EARLY CHILDHOOD EDUCATION (BS)

The recipient must complete:

1. All requirements for the Bachelor of Science degree in Early Childhood Education.
2. All of the University's generic requirements for the Honors Baccalaureate Degree.
3. These additional requirements:

\* a. Student Teaching Seminar must be taken as an Honors course (HDFS 481).

\* b. Achieve a 3.4 GPA in major.

## HUMAN SERVICES (CLINICAL SERVICES) (BS)

### CURRICULUM CREDITS

#### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing (minimum grade C-) 3

First Year Experience (FYE) 0-4

Breadth Requirements 12

Discovery Learning Experience (DLE) 3

Multi-cultural Courses 3

Some University requirements may be met by your major requirements.

See your advisor for a planning guide.

#### MAJOR REQUIREMENTS CREDITS

English course 3

Communication course 3

Creative Arts and Humanities or Foreign Language courses (including: CHIN, FREN, GREK, GRMN, HEBR, ITAL, JAPN, LATN, PORT, RUSS, SPAN) if Creative Arts and Humanities requirement is fulfilled by English Literature course) 6

History and Cultural Change 3

NTDT 200 Nutrition Concepts 3

Mathematics, Natural Sciences, and Technology (One science elective must be a laboratory science) 12

SOCI 201 Introduction to Sociology 3

PSYC 100 General Psychology 3

ECON 100 Economic Issues and Policies or

ECON 151 Intro to Microeconomics: Prices and Markets 3

Social and Behavioral Sciences Breadth courses 6

HDFS 201 Life Span Development 3

HDFS 202 Foundations of Family Studies 3 (fulfills University multicultural requirement)

HDFS 230 Families and Their Communities

HDFS 235 Survey in Child and Family Services 3

HDFS 328 Introduction to the Research Process 3

HDFS 332 Counseling Theories 3

HDFS 334 Experiential Education (Fulfills University DLE Requirement) 3 (HDFS 334 requires a 50 hour field placement. Placements need approval of instructor before class begins.)

HDFS 346 Delivery of Human Services 3

HDFS 347 Program Development and Evaluation 3

HDFS 402 Family and Child Policy 3

HDFS 422 Family Relationships 3

HDFS 475 Topics in Individual and Family Studies

or

HDFS 472 Substance Abuse and the family 3

One "Individuals and Families at Risk" course chosen from: 3

HDFS 270 Families and Developmental Disabilities

HDFS 331 Youth At Risk

HDFS 403 Adults w/Intellectual/ Developmental Disabilities

HDFS 410 The Hospitalized Child

HDFS 470 Families and Children at Risk

One developmental elective chosen from: 3

HDFS 220 Child Development I: Prenatal to Age 3

HDFS 221 Child Development II: 3-8 years

HDFS 329 Adolescent Development

HDFS 339 Adult Development and Aging

HDFS 349 Aging & Society (crosslisted with SOCI 349)

HDFS 405 Aging and the Family

HDFS 427 Parenting Through the Lifespan

The developmental elective must be related to the "area of interest" and approved by the advisor.

HDFS 465 Seminar 2

HDFS 449 Internship in Community Services 10

Prerequisite for HDFS 449 Internship: GPA of 2.50 and major field index of 2.75 with a minimum grade of C- in all HDFS courses and restricted electives.

Restricted electives 12

Determined in consultation with advisor upon completion of HDFS 235. Nine credits of restricted electives must be completed prior to senior internship.

**ELECTIVES**

After required courses are completed, sufficient elective credits must be taken to meet the minimum credits required for the degree. Only four credits of Music ensemble and four credits of 100- and 200-level courses in Military Science/Army ROTC may be counted toward the degree.

CREDITS TO TOTAL A MINIMUM OF 120

**HUMAN SERVICES (ADMINISTRATION AND FAMILY POLICY) (BS)**

**CURRICULUM CREDITS**

**UNIVERSITY REQUIREMENTS**

- ENGL 110 Critical Reading and Writing (minimum grade C-) 3
- First Year Experience (FYE) 0-4
- Breadth Requirement 12
- Discovery Learning Experience (DLE) 3
- Multi-cultural Courses 3

Some University requirements may be met by your major requirements. See your advisor for a planning guide.

**MAJOR REQUIREMENTS CREDITS**

- English course 3
- Communication course 3
- Creative Arts and Humanities or Foreign Language courses (including: CHIN, FREN, GREK, GRMN, HEBR, ITAL, JAPN, LATN, PORT, RUSS, SPAN) if Creative Arts and Humanities requirement is fulfilled by English Literature course) 3
- History and Cultural Change 3
- MATH 114 or higher, or CISC course 3
- Mathematics, Natural Sciences, and Technology (One science elective must be a laboratory science) 10
- SOCI 201 Introduction to Sociology 3
- PSYC 100 General Psychology 3
- POSC 220 Introduction to Public Policy 3
- ECON 100 Economic Issues and Policies or
- ECON 151 Intro to Microeconomics: Prices and Markets 3
- Leadership course 3

- Human Relationships elective (HDFS 330, HDFS 333, HDFS 401, HDFS 409 or HDFS 427) 3
- Social and Behavioral Sciences Breadth courses 6
- HDFS 201 Life Span Development 3
- HDFS 202 Foundations of Family Studies 3 (fulfills University multicultural requirement)
- HDFS 230 Families and Their Communities 3
- HDFS 235 Survey in Child and Family Services 3
- HDFS 328 Introduction to the Research Process 3
- HDFS 334 Experiential Education 3 (HDFS 334 requires a 50 hour field placement. Placements need approval of instructor before class begins.)
- HDFS 347 Program Development and Evaluation 3
- HDFS 402 Family and Child Policy 3
- HDFS 422 Family Relationships 3
- HDFS 475 Topics in Individual and Family Studies
- or
- HDFS 472 Substance Abuse and the Family 3

One "Individuals and Families at Risk" course chosen from: 3

- HDFS 270 Families and Developmental Disabilities
- HDFS 331 Youth-at-Risk
- HDFS 403 Adult Disability Issues
- HDFS 410 The Hospitalized Child
- HDFS 470 Families and Children at Risk

Two developmental electives chosen from: 6

- HDFS 220 Child Development I: Prenatal to Age 3
- HDFS 221 Child Development II: 3-8 years
- HDFS 329 Adolescent Development
- HDFS 339 Adult Development and Aging
- HDFS 349 Aging & Society (crosslisted with SOCI 349)
- HDFS 405 Aging and the Family
- HDFS 427 Parenting Through the Lifespan

One developmental elective must be related to the "area of interest" and approved by the advisor.

Restricted electives 18

May be fulfilled with a minor. Minors may include, but are not limited to, legal studies, public policy, criminal justice, disability studies, leadership, women's studies, public administration; related electives may be necessary to complete 18 credits. Restricted

electives may also have an applied family research emphasis, and may include, but are not limited to, HDFS 466, HDFS 615, and UNIV 401/ UNIV 402 Senior Thesis.

A minimum grade of C- is required in all HDFS courses and restricted electives.

**ELECTIVES**

After required courses are completed, sufficient elective credits must be taken to meet the minimum credits required for the degree.

Only four credits of Music ensemble and four credits of 100- and 200-level courses in Military Science/Army ROTC may be counted toward the degree.)

CREDITS TO TOTAL A MINIMUM OF 120

**HUMAN SERVICES (COMMUNITY EDUCATION)**

**UNIVERSITY REQUIREMENTS CREDITS**

ENGL 110 Critical Reading and Writing (minimum grade C-) 3  
 First Year Experience (FYE) 3  
 Breadth Requirements 12  
 Discovery Learning Experience (DLE) 3  
 Multi-cultural Course 3

Some University requirements may be met by your major requirements.  
 See your advisor for a planning guide.

**MAJOR REQUIREMENTS CREDITS**

English Course 3  
 Communication Course 3  
 MATH 114 or higher 3  
 PSYC 100 General Psychology 3  
 SOCI 201 Intro to Sociology  
 ECON 100 Economic Issues and Policies  
 or  
 ECON 102\* Civics and Economics for Teachers  
 or  
 ECON 151 Intro to Microeconomics: Prices and Markets 3  
 POSC 102\* Civics and Economics for Teachers  
 or  
 POSC 150 American Political System  
 or  
 POSC 220 Intro to Public Policy 3  
 \*ECON 102 and POSC 102 are cross-listed courses. Students cannot take both ECON 102 and POSC 102

Six credits from the Creative Arts & Humanities,

or History & Cultural Change breadth lists, or from Foreign Language Instruction 6

Mathematics, Natural Sciences and Technology, plus an additional 4-credit course with lab from Math, Science and Technology 10

**HUMAN SERVICES CORE SEQUENCE (39 CREDITS)**

HDFS 201 Life Span Development 3  
 HDFS 202 Foundations of Family Studies (fulfills Multicultural requirement) 3  
 HDFS 230 Families and Their Communities 3  
 HDFS 235 Survey in Child and Family Services 3  
 HDFS 328 Intro to the Research Process 3  
 HDFS 330 Mentoring & Helping Relationships 3  
 HDFS 334 Experiential Education 3 (HDFS 334 requires a 50 hour field placement. Placements need approval of instructor before class begins.)  
 HDFS 347 Program Development and Evaluation 3  
 HDFS 402 Family and Child Policy 3  
 HDFS 422 Family Relationships 3

Two Human Development electives chosen from: 6

HDFS 220 Child Development: Prenatal to Age 3  
 HDFS 221 Child Development: 3 - 10 Years  
 HDFS 329 Adolescent Development  
 HDFS 339 Adult Development and Aging  
 HDFS 349 Aging and Society (crosslisted with SOCI 349)  
 HDFS 405 Aging and the Family  
 HDFS 427 Parenting Through the Lifespan  
 EDUC 205 Human Development: Grades K - 8

One At Risk Elective chosen from: 3

HDFS 270 Families and Developmental Disabilities  
 HDFS 331 Youth at Risk  
 HDFS 470 Families and Children at Risk

**EDUCATION CORE COURSES (16 CREDITS)**

EDUC 230 Introduction to Exceptional Children 3  
 EDUC 258 Cultural Diversity, Schooling, and the Teacher

or

EDUC 259	Cultural Diversity in Community Centers	3
EDUC 286	Educational Technology: Professional Tools	1
HDFS 350	Technology and Assistive Tech in Early Childhood	3
HDFS 414	Classroom management/ Guidance	3
Urban Education Course (EDUC 395, 440, or 459)		3

Fifteen credits of Community Education: Restricted Electives chosen in consultation with academic advisor, requiring advisor's approval.

### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the 120 credits required for the degree

A minimum grade of C- is required in all HDFS courses and restricted electives

After required courses are completed, sufficient elective credits must be taken to meet the minimum credits required for the degree.

Only four credits of Music ensemble and four credits of 100- and 200-level courses in Military Science/Army ROTC may be counted toward the degree.)

CREDITS TO TOTAL A MINIMUM OF 120

### HUMAN SERVICES (FAMILY AND CONSUMER SCIENCES) (BS)

#### CURRICULUM CREDITS

#### UNIVERSITY REQUIREMENTS

ENGL 110	Critical Reading and Writing (minimum grade of C-)	3
First Year Experience (FYE)		0-4
Breadth Requirement		12
Discovery Learning Experience (DLE)		3
Multi-cultural Course		3

Some University requirements may be met by your major requirements. See your advisor for a planning guide.

#### MAJOR REQUIREMENTS CREDITS

English course	3
Communication Course	3
Creative Arts and Humanities or Foreign	

Language courses (including: CHIN, FREN, GREK, GRMN, HEBR, ITAL, JAPN, LATN, PORT, RUSS, SPAN) if Creative Arts and Humanities requirement is fulfilled by English Literature course)		3
BISC 105	Human Heredity and Development	3
NTDT 200	Nutrition Concepts	3
Mathematics, Natural Sciences, and Technology (One science elective must be a laboratory science)		7
SOCI 201	Intro to Sociology	3
PSYC 100	General Psychology	3
EDUC 413	Educational Psychology and Adolescent Development	3
EDUC 414	Teaching Exceptional Adolescents	3
EDUC 420	Reading in Content Areas	1
FASH 114	Fashion, Style and Culture	3
FASH 122	Apparel Product Assembly	3
HRIM 201	Food Principles	2
HRIM 211	Food Principles Laboratory	1
HDFS 201	Life Span Development	3
HDFS 202	Foundations of Family Studies	3
HDFS 220	Child Development I: Prenatal to Age 3	3
HDFS 221	Child Development II: 3-10 years	3
HDFS 222	Inclusive Curriculum: Birth - Grade 2	3
HDFS 224	Practicum in Inclusive Curriculum: Birth - Grade 2	3
HDFS 230	Families and Their Communities	3
HDFS 235	Survey in Child and Family Services	3
HDFS 270	Families and Developmental Disabilities	
or		
HDFS 470	Families and Children at Risk	3
HDFS 402	Family and Child Policy	3
HDFS 411	Inclusive Curriculum: Birth to Preschool	3
HDFS 414	Classroom Management/ Guidance and Behavior Support	3
HDFS 422	Family Relationships	3
HDFS 430	Family Life Education	
or		
HDFS 427	Parenting Through the Lifespan	3
HDFS 431	Field Experience: Birth to Preschool	1
HDFS 452	Assessment of Children	3
HDFS 490	Instructional Methods in FCS	3
HDFS 334	Experiential Education (Fulfills	

University DLE Requirement) 3  
 (HDFS 334 requires a 50 hour field placement. Placements need approval of instructor before class begins. HDFS 334 must be taken concurrently with HDFS 430 or HDFS 490.)  
 EDUC 400 Student Teaching 10  
 HDFS 480 Student Teaching Seminar 2

Students must pass the Praxis 1 exam before student teaching. Students must take the Praxis II prior to graduation to be endorsed for certification.

**Praxis Test Requirements**  
 Human Services students in the FCS concentration must complete the following Praxis test requirements:

**Praxis I:** Passing scores on the Praxis I test, all three subtests (reading, passing score = 175; writing, passing score = 173; and mathematics, passing score = 174), prior to enrollment in HDFS 480.

**Praxis II:** Proof of having taken an appropriate academic CONTENT area test or a state-designated academic content knowledge test. A copy of the Official score report must be submitted to the Delaware Center for the Teacher Education, 200 Academy Street, during enrollment in EDUC 400 Student Teaching or no later than November 1 for January graduates and May 1 for spring or summer graduates. An institutional recommendation for certification will not be issued until the candidate has presented the official score report.

**ELECTIVES**

After required courses are completed, sufficient elective credits must be taken to meet the minimum credits required for the degree.

Only four credits of Music ensemble and four credits of 100-200 level courses in Military Science/ Army ROTC may be counted toward the degree.

**HONORS- HUMAN SERVICES (BS)**

The recipient must complete:

1. All requirements for the Bachelor of Science degree in Human Services.
2. All of the University's generic requirements for the Honors Baccalaureate Degree.
3. These additional requirements:

- \* a. Achieve a 3.4 GPA in major.
- \* b. HDFS 422 (Honors section) only serves as the capstone course if taken in senior year.

**COMBINED 4+1 BS IN HUMAN SERVICES/MS IN HUMAN SERVICES LEADERSHIP PROGRAM**

The four-year curriculum for the Bachelor of Science in Human Services contains required graduate courses that prepare the student for the Master in Science curriculum. With this 4+1 plan and the proper scheduling of MS classes, students may enter immediately into the MS program full-time with the possibility of completion within one year.

UD Human Services (BS) undergraduate majors who are provisionally granted admission to the 4+1 MS HDFS program/Human Services Concentration and subsequently admitted to the MS HDFS program can waive the requirement to take a)HDFS 470 or HDFS 475 by completing HDFS 601, b) HDFS 422 by completing HDFS 621, and c) HDFS 449 (3 credits) by taking HDFS 669 (3 credits). For any undergraduate course requirement to be waived, the student needs to earn a grade of B (3.0) or better in the corresponding HDFS graduate course. In addition, students who are provisionally approved can take up to three additional 3-credit graduate courses, while an undergraduate student, toward the 33 credit MS requirement. Refer to [www.hdfs.udel.edu](http://www.hdfs.udel.edu) for information about application procedures for provisional admission.

**MINOR IN HUMAN DEVELOPMENT AND FAMILY STUDIES**

The minor in Human Development and Family Studies provides students across campus with the opportunity to integrate contemporary applied human development and family studies concerns in our society with the primary focus on their majors.

**CORE COURSES:** Take both courses  
 HDFS 201 Life Span Development 3  
 HDFS 202 Foundations of Family Studies 3

**CONCENTRATIONS:** Take one course from each of the 4 sections below

Human Development  
 HDFS 220 Child Development I: Prenatal -

HDFS 221	Age 32 3 Child Development II: 3-10 (PREREQ: HDFS 220 or HDFS 201)2 3
HDFS 329	Adolescent Development (PREREQ: EDUC 205 or HDFS 201)2 3
HDFS 339	Adult Development and Aging (PREREQ: EDUC 205 or HDFS 201)2 3

Requirements  
3May be cross-listed with PSYC 270, SOCI 270  
4May be cross-listed with HESC 401, WOMS 401

For additional information about the HDFS minor  
see:  
<http://www.hdfs.udel.edu/content/minor-in-hdfs>

#### Family Studies

HDFS 270	Families and Developmental Disabilities2,3 3
HDFS 405	Aging and the Family2 3
HDFS 427	Parenting Through the Lifespan (PREREQ: HDFS 201 or PSYC 350)2 3
HDFS 472	Substance Abuse and the Family 3

#### Relationships

HDFS 333	Development of Human Relationships2 3
HDFS 330	Mentoring and Helping Relationships2 3
HDFS 401	Foundations of Human Sexuality2,4 3
HDFS 409	Domestic Violence Services (PREREQ: HDFS 235 or SOCI 201 or WOMS 201) (REST: OPEN TO JUNIORS AND SENIORS ONLY)2 3

#### Development within Diverse Communities

BAMS 352	Black Feminist Theory 3
BAMS 416	Psychological Perspectives on Black Americans 3
EDUC 258	Cultural Diversity, Schooling & The Teacher 3
EDUC 459	Urban Schools In Urban Landscapes 3
HDFS 230	Families and their Communities2 3
HDFS 475	Topics in Human Development and Family Studies 3
SOCI 305	Social Class and Inequality 3
SOCI 418	Race, Gender, & Poverty 3
WOMS 200/SGST 200	Cultural Introduction to Sexualities and Gender Studies 3
WOMS 212	Motherhood in Culture and Politics 3
Total credits for the minor: 18	

1C- is the minimum grade needed for a course to  
count for the minor

2Approved course in Social and Behavioral  
Sciences area of University Breadth

## College of Engineering

### College of Engineering

The mission of the College of Engineering at the University of Delaware is to cultivate both learning and the advancement of knowledge in the engineering sciences, energy and environmental policy, and computer and information sciences. To this end, we provide all of our students with outstanding undergraduate, graduate, and continuing education programs so that they will know how to reason critically and independently yet cooperate productively. Our graduates should understand our culture, communicate clearly in writing and speech, and develop into informed citizens and leaders. The College encourages a strong tradition of applying its distinguished scholarship, research, and educational resources to serve the local, state, and national communities through collaborative efforts with individuals, industry, and government. The College of Engineering at the University of Delaware recognizes the increasing diversity of its students and faculty and, therefore, strives to create an atmosphere in which all people feel welcome to learn and participate in the free exchange of ideas.

The College of Engineering offers baccalaureate degrees in biomedical, chemical, civil, environmental, electrical, computer, and mechanical engineering. We also offer baccalaureate degrees in energy and environmental policy, computer science, and information systems. The College offers minors in biochemical engineering, bioelectrical engineering, biomedical engineering, civil engineering, environmental engineering, materials science and engineering, nanoscale materials, sustainable energy technology, computer science and bioinformatics. The College of Engineering and the College of Arts and Sciences also offer a joint five-year program which leads to a bachelor's degree in one of the engineering majors as well as a bachelor's degree from the College of Arts and Sciences (see Arts and Sciences-Engineering Double Degree). Additionally, the College of Engineering and the Lerner College of Business and Economics offer a joint five-year program that leads to a baccalaureate degree in an engineering major and a Master of Business Administration degree from the Lerner College of Business and Economics. Inquiry should be made to the Assistant Dean for Undergraduate Advisement at (302) 831-8659 by March 1 of the sophomore year of engineering study. The University's Air Force ROTC program

is also administered through the College of Engineering.

Engineering freshmen have the choice of being admitted directly into one of our seven Engineering majors or of entering the first fall semester as Engineering Undecided (EGU). Students who choose the EGU option begin their studies in the fall by taking a special set of courses called the Common Fall Semester. This set of courses has been designed to permit EGU freshmen to choose any of the seven Engineering majors in their spring semester. The Introduction to Engineering course taught in the fall semester lays out the nature of each engineering discipline so that students may make an informed choice of major during the latter part of the semester as they begin registration for the spring. Successful completion of the Common Fall Semester permits students to finish any engineering major in the normal four years, provided that they are on track with the calculus sequence for the chosen major.

In addition to academic programs, the College of Engineering also maintains the Resources to Insure Successful Engineers (RISE) Program. RISE provides financial assistance, counseling, and social support to students from groups who are underrepresented in engineering, as well as others. The program begins with a pre-freshman Summer Enrichment Program and continues to graduation. Individuals should contact the Student Support Manager of the RISE Program at (302) 831-6315.

### Advisement

Undergraduate student advisement begins during New Student Orientation and continues through graduation. All College of Engineering students are assigned faculty advisors. Students are required to consult with them during the registration periods. Students must also obtain approval from their advisors for courses taken during the Winter or Summer Sessions and when adding or dropping courses. Students are also encouraged to meet with their faculty advisors at other times to learn more about undergraduate academic options; the engineering, energy and environmental policy, and computer and information sciences professions; and graduate school opportunities.

The College Undergraduate Advisement Office provides advisement to students who experience

academic difficulties or who require additional guidance. The Assistant Dean for Undergraduate Advisement conducts a preliminary degree checkout with each College of Engineering student early in his or her senior year to help identify any impediments to graduation.

### **Engineering Curriculum Organization**

The undergraduate curriculum in each engineering major consists of a core of required courses, a group of technical elective courses, and a group of breadth requirement courses. The core group includes courses in mathematics, chemistry, physics, computer science, and engineering. The technical elective courses allow students to investigate the sciences in more depth and to develop a concentration within their engineering discipline. Most of the breadth requirement courses are taken from the humanities and social sciences to provide a well-rounded education. They are described in more detail in the following section. Additional academic requirements specified by individual engineering departments are given in the appropriate departmental sections.

### **University/College Breadth Requirements**

The College of Engineering requires 21 credits distributed as follows:

\* Completion of 3 credits in each of the following University Breadth Requirement categories, with no more than one course taken from any single rubric (i.e., the four-letter subject code):

- o Creative Arts and Humanities
- o History and Cultural Change
- o Social and Behavioral Sciences
- o Mathematics, Natural Sciences, and

Technology (normally satisfied by one of the following courses that Engineering students take: CHEM 103, CHEM 104, CHEM 111, CHEM 112, CISC 106, MATH 241, MATH 242, MATH 243, MEEG 112, PHYS 207, PHYS 208)

o 9 additional credits must be taken from the University Breadth Requirement course list in the Creative Arts and Humanities, History and Cultural Change, or Social and Behavioral Sciences categories and/or from the College of Engineering Supplemental Course List.

\* Of the 21 credits, for timely progress toward degree completion, 3 credits must satisfy the University Multicultural Requirement.

\* Of the 21 credits, 6 must be at the upper level (usually a 300-level or above course) restricted to courses in the Creative Arts and Humanities, History and Cultural Change, and/or Social and Behavioral Sciences categories from the University Breadth Requirement course list and/or courses designated as upper level on the College of Engineering Supplemental Course List.

\* All courses must be passed with a minimum grade of C-.

Students should choose courses in consultation with their advisors. Detailed guidelines, which include a list of courses that may be used to satisfy the program's requirements, may be obtained from the Assistant Dean for Undergraduate Advisement, department offices, and the College of Engineering website at:

[http://www.engr.udel.edu/advise/undergrad\\_programs.html](http://www.engr.udel.edu/advise/undergrad_programs.html).

### **Dean's Scholar Program**

The Dean's Scholar Program exists to serve the needs of students whose clearly defined educational goals cannot be effectively achieved by pursuing the standard curricula for all existing majors, minors, and interdepartmental majors sponsored by the University. Driven by an overarching passion or curiosity that transcends typical disciplinary bounds and curricula, a Dean's Scholar's intellectual interests may lead to broad interdisciplinary explorations of an issue or to more intense, in-depth studies in a single field at a level akin to graduate work. However, it is important to note that because engineering degrees are professionally accredited, it is difficult for a Dean's Scholar to complete an engineering degree within four years. In consultation with faculty advisors and the Assistant Dean, Dean's Scholars design an imaginative and rigorous individual plan of study to meet the total credit hours required for graduation. Contact the Assistant Dean or go to: [www.udel.edu/deansscholar](http://www.udel.edu/deansscholar) for more information and the application.

### **Academic Standards**

The engineering departments have established minimum standards for certain courses and for progression to the sophomore or junior level for each of their majors. These standards are given

in the appropriate departmental sections.

In order to graduate, engineering students must satisfy the general University requirements for a baccalaureate degree as well as all the requirements of their engineering major. Additionally, engineering students must have at least a 2.0 average in all engineering, mathematics, and science courses used to fulfill graduation requirements. If a course is repeated, only the last grade will be used to compute the engineering grade-point average; however, all grades are used to compute the University's cumulative grade-point index. Credit from courses taken pass/fail cannot be used to complete any engineering degree requirement, unless the course is only offered pass/fail in the engineering curriculum.

### **Changing Major or Transferring to Engineering**

The engineering curricula are very demanding. Therefore, applicants should have a good record in mathematics and science. We recommend that students who wish to enter the College of Engineering contact the Assistant Dean for Undergraduate Advisement at (302) 831-8659 to discuss curriculum requirements and admissions policies before beginning the application process.

Students at the University of Delaware who wish to change into a major within the College of Engineering must make a formal request to the appropriate engineering department. This request may be made through the Student Information System using a web-based form.

Students from outside the University of Delaware who wish to transfer into a major within the College of Engineering must make a formal application through the University Admissions Office.

Changing Major/Minor or Transferring to  
Computer and Information Sciences

### **Air Force ROTC**

Telephone: (302) 831-2863  
<http://www.udel.edu/afrotc>  
Faculty Listing: <http://www.udel.edu/afrotc/cadre/index.htm>

The Air Force Reserve Officer Training Corps (AFROTC) program trains qualified college students to earn commissions as second lieutenants in the United States Air Force while completing their university course requirements. Commissioning follows the award of a university bachelor's degree. Those who have a bachelor's degree and are enrolled in graduate courses are also eligible. Questions concerning applicant qualifications should be directed to the unit's admission officer.

### **PROGRAMS OFFERED**

#### **FOUR-YEAR PROGRAM**

The four-year program is composed of a General Military Course (GMC) and a Professional Officer Course (POC). The first two years, the GMC, provide a general introduction to the Air Force and the various career fields. Students enrolled in the GMC who are not receiving an Air Force scholarship incur no obligation to the Air Force and may elect to discontinue the program at any time. The final two years, the POC, concentrate on developing leadership and management skills and on a study of American defense policy. Students must compete for entry into the POC. If accepted, they must attend field training at a designated Air Force base during the summer following their sophomore year of college. When they return to the university in the fall, they are placed under contract with the Air Force to complete the program and serve a minimum of four years on active duty. Pilot and navigator candidates incur an additional obligation because of specialized training following commissioning.

Students in any major with less than four years, but more than two remaining until graduation may join the program. These students will enter the appropriate GMC class based in their projected graduation date.

#### **TWO-YEAR PROGRAM**

The two-year program is normally offered to prospective juniors and graduate students. The academic requirements for this program are identical to the final two years of the four-year program. This option may not be available to students in all academic degrees.

#### **GENERAL REQUIREMENTS FOR POC ACCEPTANCE**

Students competing for acceptance as POC cadets must pass the Air Force Officer Qualifying

Test, be physically qualified, meet certain age requirements, be in good academic standing, and be able to meet all Air Force enlistment standards.

## **THE CURRICULUM**

### **ACADEMIC COURSES**

Freshman year: The Foundations of the USAF I and II AFSC 110 (fall) and AFSC 111 (spring). Each of these one-credit courses consists of approximately one hour of academic class each week. In combination, these two courses survey the history and organization of the Air Force, its benefits and opportunities, and leadership skills.

Sophomore year: The Evolution of USAF Air/Space Power I and II - AFSC 210 (fall) and AFSC 211 (spring). Each of these one-credit courses consists of approximately one hour of academic class each week. These two GMC courses survey the history of air power from the 18th century to the present.

GMC courses are open to all freshman and sophomore students.

Junior year: Leadership Studies I and II-AFSC 310 (fall) and AFSC 311 (spring). Each of these three-credit courses consists of three hours of academic classes each week. Here the student is introduced to leadership and management concepts. The courses are designed to provide a foundation for basic leadership and management skills, with emphasis on communications.

Senior year: National Security Affairs I and II-AFSC 410 (fall) and AFSC 411 (spring). Each of these three-credit courses consists of three hours of academic classes each week. These courses focus on our national security policy-its evolution, actors, processes, and current issues. Emphasis is also given to military professionalism, military justice, and communication skills.

POC courses are open to all juniors and seniors.

### **LEADERSHIP LABORATORY**

Leadership laboratory is required for students who are members of the Air Force Reserve Officer Training Corps and are eligible to pursue a commission as determined by the Professor of Aerospace Studies. Leadership laboratory is scheduled for two hours per week for GMC and for three hours per week for POC.

### **PHYSICAL FITNESS**

Members of the Air Force Reserve Officer Training Corps are required to maintain certain physical fitness standards. Physical training activities are scheduled twice a week for one hour each. In order to participate, members must have a valid DoDMERB physical or sports physical. Forms to document the sports physical are available at the detachment and on-line.

### **SCHOLARSHIPS AVAILABLE**

Air Force ROTC scholarships are available to qualified students in all majors and are based on the whole-person concept. Scholarships are awarded in varying amounts and may be used towards tuition and some mandatory fees. All Air Force scholarships include a yearly book stipend and a tax-free monthly allowance. Students who accept these scholarships enter the AFROTC program as a contract cadet and incur a four-year active duty service commitment.

The University of Delaware also offers scholarships to students enrolled in the AFROTC program. These scholarships may be used towards tuition or room charges and are offered each semester to qualified students in all majors based on merit.

Contact the unit's admission officer for current details.

### **AIR FORCE ROTC NURSING PROGRAM**

Air Force ROTC makes it possible for qualified nursing school students to enroll in its programs and, upon completion of all academic requirements, receive a commission as a second lieutenant in the United States Air Force in the nursing career field. Scholarships are available to qualified applicants.

### **BACHELOR OF BIOMEDICAL ENGINEERING (BBE)**

F. Charles Shermeyer, Assistant Dean  
Telephone: (302) 831-8659  
E-mail: fcsherm@udel.edu

The Biomedical Engineering Program is an interdisciplinary academic program in the College of Engineering that offers a Bachelor of Biomedical Engineering, including an Honors Degree option.

Biomedical Engineering is defined by the National Institutes of Health (NIH) as follows: "Biomedical Engineering integrates physical, chemical, mathematical, and computational sciences and engineering principles to study biology, medicine, behavior and health. It advances fundamental concepts, creates knowledge from the molecular to the organ systems levels, and develops innovative biologies, materials, processes, implants, devices, and informatics approaches for the prevention, diagnosis, and treatment of disease, for patient rehabilitation, and for improving health."

The aim of our program is to provide students with the training necessary to pursue a career in medicine, engineering or biomedical research. Our program is designed to provide students with sufficient biomedical coursework for advanced training at medical school or physical therapy school or other allied health professions. Core biomedical courses are taught early in the program so that students will be well prepared to do well on the MCAT or GRE exam. The program also presents a broad background in chemical, mechanical and electrical engineering so that students will be prepared for graduate school in engineering. The breath of engineering skills will also train students for careers in biomedical engineering industries, such as in medical devices or pharmaceuticals. Finally the program is also structured to provide students with the skills to enter careers in biomedical research with a quantitative engineering emphasis.

Technical electives in the program are designed to give students specialized experience in particular areas of biomedical engineering such as biomaterials or biomechanics or biochemical engineering. This allows students to specialize in particular sub-disciplines or to broaden their skill-base.

#### CURRICULUM CREDITS

Superior figures indicate year (1 = freshman, 2 = sophomore, 3 = junior, 4 = senior) and semester (F = fall, S = spring) in which the course should be taken.

#### UNIVERSITY REQUIREMENTS

ENGL 110	Critical Reading and Writing (minimum grade C-)	31F
First Year Experience (FYE)		0-4
Breadth Requirements		12
Discovery Learning Experience (DLE)		3
Multi-cultural Course(s)		3

#### MAJOR REQUIREMENTS

Breadth Requirements 21  
 The College of Engineering requires 21 total credits, which includes 9 additional credits above and beyond the 12 University Breadth Requirement credits. Coursework may include courses from the University Breadth Requirement list and the College of Engineering Supplemental Course list. See College of Engineering Breadth Requirements for a detailed description. For timely progress toward degree completion, 3 credits must satisfy the University Multicultural Requirement. All courses must be passed with a minimum grade of C-. Additionally, three of the Breadth Requirement courses (minimum of nine credits) must be in the same department or program, and at least one of these three courses must be above the introductory level. Courses classified as Mathematics, Natural Sciences, and Technology in the University Breadth Requirement list may not be used to fulfill this requirement.

#### Core Courses

BISC 207	Introductory Biology I	41S
BISC 208	Introductory Biology II	42F
BMEG 301	Systems Physiology I	33F
BMEG 302	Systems Physiology II	33S
BMEG 310	Bioengineering Mechanics	43F
BMEG 320	Cell and Tissue Transport	33S
BMEG 330	Medical Instrumentation/ Electronics Lab	33S
BMEG 450	Biomedical Engineering Design (DLE)	44F
CHEG 404	Probability and Statistics for Engineers	33S
CHEM 103	General Chemistry I	41F
CHEM 104	General Chemistry II	41S
CHEM 321	Organic Chemistry I	42F
CHEM 322	Organic Chemistry II	42S
CHEM 527	Introduction to Biochemistry	33F
CISC 106	General Computer Science for Engineers	31F
EGGG 101	Introduction to Engineering (FYE)	21F
ELEG 305	Signals and Systems	32S
ELEG 479	Introduction to Medical Imaging Systems	34S
MATH 241	Analytic Geometry and Calculus A	41F
MATH 242	Analytic Geometry and Calculus B	41S
MATH 243	Analytic Geometry and Calculus C	42F
MATH 305	Applied Mathematics for	

	Chemical Engineers	32S
MEEG 483	Orthopaedic Biomechanics	33S
MSEG 302	Materials Science for Engineers	33F
MSEG 460	Biomaterials and Tissue Engineering	34F
PHIL 444	Medical Ethics	34S
PHYS 207	Fundamentals of Physics I	42F
PHYS 208	Fundamentals of Physics II	42S

**NOTES:**

- \* Italicized courses are under development. See website for course descriptions.
- \* For students desiring more advanced training in mathematics, the 2-course sequence of MATH 351 and MATH 352 or MATH 351 and MATH 353 may be substituted for MATH 305 and one Technical Elective.
- \* PHIL 444 counts as an Upper Level Breadth Requirement.

**TECHNICAL ELECTIVES**

Students must take 12 credits (usually 4 courses) of Technical Electives from the following list. Independent Study, Senior Research, and additional courses for satisfying this requirement can be approved by the advisor.

BMSC 630	Human Movement Control	3
CHEG 620	Biochemical Engineering	3
CHEG 621	Metabolic Engineering	3
CHEM 443	Physical Chemistry	3
ELEG 418	Digital Control Systems	3
ELEG 471	Mathematical Physiology	3
ELEG 478	Introduction to Nano and Biophotonics	3
ELEG 680	Immunology for Engineers	3
MEEG 482	Clinical Biomechanics	3
MEEG 485	Control of Human Movement	3
MEEG 612	Biomechanics of Human Movement	3
MSEG 630	Introduction to Science and Engineering of Polymer Systems	3
MSEG 632	Principles of Polymerization	3
MSEG 635	Principles of Polymer Physics	3
UNIV 401	Senior Thesis	2-4
UNIV 402	Senior Thesis	2-4

CREDITS TO TOTAL A MINIMUM OF 126

**HONORS BACHELOR OF BIOMEDICAL ENGINEERING**

A recipient of Honors Bachelor of Biomedical Engineering must satisfy the following:

- \* All requirements for the Bachelor of Biomedical Engineering degree.
- \* All generic University requirements for the Honors Degree. Graduate courses approved for this purpose by the department may be counted as Honors courses.

**CENTER for ENERGY & ENVIRONMENTAL POLICY (CEEP)**

Energy and Environmental Policy, BS

John Byrne, Director of the Undergraduate Program,  
Distinguished Professor of Energy and Climate Policy,  
CEEP Director  
Telephone: (302) 831-8405  
<http://ceep.udel.edu>  
Faculty Listing: <http://ceep.udel.edu/people>

The Center for Energy and Environmental Policy (CEEP) offers an undergraduate degree in the interdisciplinary field of Energy and Environmental Policy (ENEP). The ENEP major offers an integrated set of courses in the fields of social and policy sciences, natural sciences, engineering and analytical methods to prepare its graduates with the necessary knowledge and tools to enter professional positions in the fields of energy and environmental analysis, planning and policy development. Students are provided with the cross disciplinary knowledge and analytical skills to address local, national and global energy and environmental issues in complex, real world contexts. The program's faculty are drawn from the Colleges of Engineering, Agriculture and Natural Resources, Arts and Sciences, and Business and Economics.

The ENEP undergraduate degree is the only program in the state or region providing an undergraduate major that integrates a cross-disciplinary set of courses in policy analysis, economics, the social and natural sciences, and engineering to address the need to build a positive sustainable energy and environmental future. The unique nature of this major is that it combines the rigor and content knowledge of these disciplines to educate and prepare

students to be effective decision makers and problem solvers in the energy and environmental sectors.

The undergraduate major in ENEP is designed to educate and build core competencies and skills for prospective practitioners who will work at the intersections of business, technology, government, research and civil society sectors seeking to improve energy and environmental policy.

Beyond the core courses, majors must choose to specialize in one of three concentrations:

1. Energy, Economics and Public Policy: provides an understanding of the influence of policy and economics on the development of the energy sector, with special emphases on sustainable energy development.
2. Energy, Environment and Society: prepares majors to understand and analyze GHG emissions projection scenarios such as those developed by the Intergovernmental Panel on Climate Change (IPCC) and to evaluate technology and policy options related to climate challenges. Coursework in social science, econometrics and statistical analysis as well as science and technology prepares students to conduct energy and environmental scenario analyses, policy simulations, and long-term policy analysis and planning.
3. Energy, Science and Technology: enables students to understand the scientific and technological constraints and opportunities that can effect sustainable energy development. Courses bridge scientific and technological knowledge with an understanding of energy and environmental policy.

For all concentrations, students will be prepared to continue their education in graduate study in ENEP and related fields at the master's level. Each concentration also includes the experience of Internship fieldwork and a senior research paper.

Students transferring into the major from outside the University of Delaware will have their transcripts evaluated on a case-by-case basis.

## ENERGY and ENVIRONMENTAL POLICY (BS)

Curriculum Credits  
UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing (minimum grade C-) 3  
ENEP 117 (FYE) Science, Society and Energy 1  
Breadth Requirements 12  
Discovery Learning Experience (fulfilled by taking ENEP 364: Internship 3  
Multicultural Course 3

### BREADTH REQUIREMENTS

Group A: Analysis and appreciation of the creative arts and humanities 9  
Group B: Study of culture and institutions over time 6  
Group C: Empirically-based study of human beings and their environment 6  
Group D: Study of natural phenomena through experiment or analysis 10

### MAJOR REQUIREMENTS

Second Writing Course – 3 credits chosen from courses designated in online Registration Materials as satisfying the Arts and Sciences Second Writing Course Requirement. (This requirement may be fulfilled through a course taken to complete other course requirements.) 3

### Core Curriculum -

ENEP 250 Introduction to Energy Policy 3  
PHYS 143 Energy, Technology and Society 3  
ECON 151 Introduction to Micro-Economics: Prices and Markets 3  
POSC 220 Introduction to Public Policy 3 or UAPP 225 Crafting Public Policy  
GEOG 236 Conservation of Natural Resources: Global Issues 3

In addition to the Core Curriculum, the Breadth Requirements and the Major Requirements, students must choose one of the following concentrations:

Energy, Economics and Public Policy Concentration:

Required Advanced Courses  
Choose 18 credits from the required advanced course list below.

ECON 300 Intermediate Microeconomic Theory 3

ENEP 402 Electricity Policy and Planning 3  
 FREC 343/ECON 343 Environmental  
 Economics 3  
 POSC 350 Politics and the Environment 3

One of the following:

ENEP 468 Research in Global Energy  
 Policies 3  
 ENEP 470 Readings in U.S. Energy Policy 3

One of the following:

ECON 422 Econometric Methods &  
 Models I 3  
 MATH 201 Introduction to Statistical  
 Methods I 3  
 POSC 300 Data Analysis for Political  
 Sciences 3  
 STAT 370 Introduction to Statistical  
 Analysis I 3

Elective Advanced Courses

Choose 30 credits from the elective advanced  
 course list below.

(other courses can be added with the approval of  
 the advisor.)

BUAD 301 Introduction to Marketing 3  
 BUAD 472 Marketing, Society and the  
 Environment(Prerequisite:BUAD 301) 3  
 COMM 425/POSC 425 Energy/Environmental  
 Policy, Public Opinion, Media and  
 Politics 3  
 ECON 152 Introduction to  
 Macroeconomics 3  
 ECON 311 Economics of Developing  
 Countries 3  
 ECON 360 Government Regulation of  
 Business 3  
 ECON 422 Econometric Methods &  
 Models I 3  
 ECON 426 Mathematical Economic  
 Analysis 3  
 ECON 463 Economics of Regulation 3  
 ECON 471/FREC 471 Futures and Options  
 Markets 3  
 ENEP 410 Political Economy of  
 Environment 3  
 ENEP 468 Research in Global Energy  
 Policies 3  
 ENEP 470 Readings in U.S. Energy Policy 3  
 ENEP 426 Climate Change: Science, Policy  
 and Political Economy 3  
 GEOG 250 Computer Methods in  
 Geography 4  
 GEOG 372 Geographic Information  
 Systems 3

GEOG 412 Physical Climatology 4  
 GEOG 428/UAPP 428 Land Use &  
 Environmental Planning 3  
 GEOL 421 Environmental and Applied  
 Geology 3  
 MATH 201 Introduction to Statistical  
 Methods I 3  
 MATH 202 Introduction to Statistical  
 Methods II 3  
 MATH 221 Calculus 1 3  
 MATH 241 Analytical Geometry and  
 Calculus A 4  
 MATH 242 Analytical Geometry and  
 Calculus B 4  
 PHIL 340 Cross Cultural Environmental  
 Ethics 3  
 POSC 300 Data Analysis for Political  
 Sciences 3  
 POSC 301 State and Local Government 3  
 POSC 311 Politics of Developing Nations 3  
 POSC 323 International Political Economy 3  
 STAT 370 Introduction to Statistical  
 Analysis I 3  
 STAT 371 Introduction to Statistical  
 Analysis II 3  
 UAPP 325 Public Policy Analysis 3  
 UAPP 410 Making Convincing Policy  
 Arguments 3  
 UAPP 419 Policy Leadership and Ethics 3  
 UAPP 427 Evaluating Public Policy 3  
 UAPP 440 Contemporary Policy Issues 3  
 Foreign Language (up to 8 credits) 8

Energy, Environment and Society Concentration:

Required Advanced Courses

ENEP 426 Climate: Science, Policy and  
 Political Economy 3  
 POSC 350 Politics and the Environment 3  
 POSC 425/COMM425 Energy/Environment  
 Policy, Public Opinion, Media and  
 Politics 3  
 ECON 300 Intermediate Microeconomic  
 Theory 3

Elective Advanced Courses

Science/Methods - choose 12 credits from list  
 below:

MATH 201 Introduction to Statistical  
 Methods I 3  
 MATH 202 Introduction to Statistical  
 Methods II 3  
 MATH 221 Calculus 1 3  
 MATH 241 Analytical Geometry and

GEOG 250	Calculus A	4
	Computer Methods for Geography and Environmental Science	4
GEOG 412	Physical Climatology (MATH 241 and GEOG 250 required)	4
GEOG 456	Hydro-Climatology (MATH 241 and	3
GEOG 372	Geographic Information Systems (GIS)	3
ECON 422	Econometric Methods & Models I	3
POSC 300	Data Analysis for Political Sciences	3
STAT 370	Introduction to Statistical Analysis I	3
STAT 371	Introduction to Statistical Analysis II	3
STAT 408	Statistical Research Methods I	3
STAT 475	Statistics for Environmental Sciences	3

Social Science – choose 24 credits from list below:

ECON444/FREC 444	Economics of Environmental Management	3
ENEP 402	Electricity Policy and Planning	3
ENEP 410	Political Economy of the Environment	3
ENEP 468	Research in Global Energy Policies	3
ENEP 470	Readings in U.S. Energy Policy	3
FREC 343/ECON 343	Environmental Economics	3
FREC 424	Resource Economics	3
FREC 450	Topics in Environmental Law	3
GEOG 428/UAPP 428	Land Use & Environmental Planning	3
GEOL 112	Earth Resources and Public Policy	3
GEOL 304	Earth System Science	4
GEOL 421	Environmental and Applied Geology	3
PHIL 340	Cross Cultural Environmental Ethics	3
PHIL 448	Environmental Ethics	3
POSC 311	Politics of Developing Countries	3
POSC 323	International Political Economy	3
POSC 456	Disaster and Politics	3
SOCI 331	World Population, Profiles and Trends	3
SOCI 470	Environmental Sociology	3
SOCI 471	Disasters, Vulnerability and Development	3
UAPP 325	Public Policy Analysis	3

UAPP 427	Evaluating Public Policy	3
	Foreign Language (up to 8 credits)	8

Energy, Science and Technology Concentration:

Required Advanced Courses

CHEM 103	General Chemistry	4
ECON 300	Intermediate Microeconomic Theory	3
ENEP 426	Climate Change: Science, Policy and Political Economy	3
MATH 241	Analytic Geometry and Calculus A	4
PHYS 201	Introductory Physics I	4

Elective Advanced Courses

Choose 30 credits from the elective advanced course list below.

BUAD 301	Introduction to Marketing	3
BUAD 472	Marketing, Society and the Environment (Prerequisite: BUAD 301)	3
CHEM 104	General Chemistry II	4
ECON 311	Economics of Developing Countries	3
ELEG415/ELEG 615	Electric Power and Renewable Energy Systems	3
ELEG 491	Ethics and Impacts of Engineering	2
ELEG 676/MSEG 676	Sustainability	3
ENEP 402	Electricity Policy and Planning	3
ENEP 410	Political Economy of Environment	3
ENEP 468	Research in Global Energy Policies	3
ENEP 470	Readings in U.S. Energy Policy	3
FREC 343/ECON 343	Environmental Economics	3
GEOG 250	Computer Methods in Geography (MATH 115 or MATH 117 required)	4
GEOL 421	Environmental and Applied Geology	3
GEOG 372	Geographic Information Systems	3
GEOG 412	Physical Climatology (Prerequisite: MATH 241 and GEOG 250)	4
GEOG 428/UAPP 428	Land Use & Environmental Planning	3
MATH 115	Pre-Calculus	3
MATH 117	Pre-Calculus for Scientists & Engineers	4
MATH 221	Calculus 1	3
MATH 241	Analytic Geometry and Calculus A	4

MATH 242	Analytic Geometry and Calculus B (MATH 241 Required)	4
MEEG 435	Wind Power Engineering	3
MEEG 442	Introduction to Fuel Cells	3
PHIL 340	Cross Cultural Environmental Ethics	3
POSC 350	Politics and the Environment	3
POSC 425/COMM 425	Energy/Environmental Policy, Public Opinion, Media and Politics	3
STAT 370	Introduction to Statistical Analysis I	3
STAT 371	Introduction to Statistical Analysis II	3
UAPP 325	Public Policy Analysis	3
UAPP 427	Evaluating Public Policy	3
Foreign Language	(up to 8 credits)	8

All concentrations require the following courses:

#### Capstone Courses

GEOG 422	Resources, Development and the Environment	3
ENEP 424	Sustainable Energy Policy and Planning	3
ENEP 425	Energy: Resources, Technologies and Policies	3
CHEG 625	Green Engineering	3

#### Internship and Senior Research paper

ENEP 364	Internship Fieldwork (DLE)	3
Students intern in an organization in the field of energy and environmental policy.		
ENEP 472	Senior Research Paper	6
This is a tutorial course taken with approval from an Energy and Environmental Policy Program faculty member.		

#### Electives

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

TOTAL CREDITS NEEDED TO GRADUATE 125

### Chemical Engineering

Catherine Stoner  
 Telephone: (302) 831-1290  
 E-mail: [cstoner@udel.edu](mailto:cstoner@udel.edu)  
<http://www.che.udel.edu>  
 Faculty Listing: <http://www.che.udel.edu/directory/faculty.html>

The Department of Chemical Engineering offers a program leading to the Bachelor of

Chemical Engineering, including an Honors Degree option. Chemical Engineering is a combination of biology, chemistry, mathematics and physics with the art and creativity of engineering. The department has much more inclusive descriptions of the profession for those interested.

The Educational Objectives of our Department are:

\* To educate graduates who will be able to apply their knowledge of chemical engineering, including their problem solving, analytical, design, and communication skills, in the private or public sectors and/or in the pursuit of more advanced degrees.

\* To cultivate graduates who will provide technical, educational, public sector and/or business leadership in a rapidly changing, increasingly technological, global society and who recognize their professional responsibility toward the betterment of our community. The chemical engineering curriculum is designed to fulfill these objectives and offers an early start in the discipline. In the first year, the course CHEG 112 applies the student's background in science and mathematics to the solution of several engineering problems. Physical chemistry is introduced earlier than at many other schools, enabling much of the chemical engineering science component to be completed by the end of the third undergraduate year. As a result, the fourth year provides opportunities for in-depth pursuit of technical topics of special interest. A student can choose general technical electives and chemical engineering technical electives to concentrate or minor in a special area.

The Department of Chemical Engineering also offers a minor in Biochemical Engineering designed for those students with special interest in the pharmaceutical and biotechnology industries. The Biochemical Engineering minor's curriculum consists of a sequence of courses in the biological and biochemical sciences and their engineering applications (see description below). A student can fulfill the requirements of both the Bachelor in Chemical Engineering and a minor in Biochemical Engineering in four academic years.

The early introduction to the discipline enables the student who has made an inappropriate choice to transfer out of the chemical engineering program without loss of status. However, it also makes it difficult for students to transfer into the program during the sophomore

or junior years.

## BACHELOR OF CHEMICAL ENGINEERING

### CURRICULUM CREDITS

Superior figures indicate year (1 = freshman, 2 = sophomore, 3 = junior, 4 = senior) and semester (F = fall, S = spring) in which the course should be taken.

### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing  
(minimum grade C-) 31F  
First Year Experience (FYE) 0-4  
Breadth Requirements 12  
Discovery Learning Experience (DLE) 3  
Multi-cultural Course(s) 3

### MAJOR REQUIREMENTS

Breadth Requirements 21  
The College of Engineering requires 21 total credits, which includes 9 additional credits above and beyond the 12 University Breadth Requirement credits. Coursework may include courses from the University Breadth Requirement list and the College of Engineering Supplemental Course list. See College of Engineering Breadth Requirements for a detailed description. For timely progress toward degree completion, 3 credits must satisfy the University Multicultural Requirement. All courses must be passed with a minimum grade of C-. Additionally, three of the Breadth Requirement courses (minimum of nine credits) must be in the same department or program, and at least one of these three courses must be above the introductory level. Courses classified as Mathematics, Natural Sciences, and Technology in the University Breadth Requirement list may not be used to fulfill this requirement.

### Core Courses

CHEG 112 Introduction to Chemical Engineering 31S  
CHEG 231 Chemical Engineering Thermodynamics 32F  
CHEG 320 Engineering Economics and Risk Assessment 33S  
CHEG 325 Chemical Engineering Thermodynamics 32S  
CHEG 332 Chemical Engineering Kinetics 33F  
CHEG 341 Fluid Mechanics 33F  
CHEG 342 Heat and Mass Transfer

33S  
CHEG 345 Chemical Engineering Laboratory I 33S  
CHEG 401 Chemical Process Dynamics and Control 34F  
CHEG 432 Chemical Process Analysis (DLE) 34S  
CHEG 443 Mass Transfer Operations 34F  
CHEG 445 Chemical Engineering Laboratory II 34F  
CHEM 111 General Chemistry 31F  
CHEM 112 General Chemistry 31S  
CHEM 220 Quantitative Analysis 32F  
CHEM 221 Quantitative Analysis Laboratory 12F  
CHEM 331 Organic Chemistry 33F  
CHEM 332 Organic Chemistry 33S  
or CHEM 527 Introductory Biochemistry  
CHEM 333 Organic Chemistry Laboratory I (lecture only) 13F  
CHEM 444 Physical Chemistry 32S  
CHEM 445 Physical Chemistry Laboratory I 12S  
The student has the option of taking two credits of CHEM 333 Organic Chemistry Laboratory (laboratory and lecture) and not taking CHEM 445 Physical Chemistry Lab I.  
CISC 106 General Computer Science for Engineers 31F  
EGGG 101 Introduction to Engineering (FYE) 21F  
MATH 242 Analytic Geometry and Calculus B 41F  
MATH 243 Analytic Geometry and Calculus C 41S  
MATH 305/CHEG 305 Applied Mathematics for Chemical Engineering 32S  
MSEG 302 Materials Science for Engineers 32F  
PHYS 207 Fundamentals of Physics I 41S  
PHYS 208 Fundamentals of Physics II 42F

### TECHNICAL ELECTIVES

The student must take four General Technical Electives (12 credits) and three Chemical Engineering Electives (9 credits) OR, upon approval by her/his academic advisor, take three General Technical Electives (9 credits) and four Chemical Engineering Electives (12 credits). In either case the student must complete a minimum of 21 credits of General Technical and Chemical Engineering Elective courses.

General Technical Electives 12-9  
The purpose of the technical electives is to advance the scientific or engineering background

of the chemical engineers. The technical electives program consists of a minimum of twelve credits taken from the College of Engineering and the College of Arts and Sciences (see below). At least three of these courses (nine credits) must be at the intermediate level (generally 300-600). Students should select their technical electives in the spring of sophomore year to avoid scheduling conflicts. Students should formulate an academic plan for their technical and Chemical Engineering electives with the assistance of their academic advisor.

The technical elective program is under constant review by the faculty. An updated list is available in the department office, and a formal mechanism exists to make substitutions coupled with the Chemical Engineering Technical Electives to obtain a technical concentration.

Chemical Engineering Electives 9-12  
The curriculum provides three Chemical Engineering Electives in the senior year. In addition, the student can exchange one of the General Technical Electives provided in the senior year for a Chemical Engineering Elective after consultation with the academic advisor. These courses are intended to provide some flexibility in selecting a Chemical Engineering program at the advanced level. Students should decide with the assistance of their advisor if they should conduct a program of independent research and then choose their course elective(s). Chemical Engineering Electives are defined as follows: any Chemical Engineering course numbered 466 to 474; UNIV 401/UNIV 402 Senior Thesis (directed by a Chemical Engineering faculty); any 600- or 800-level course in Chemical Engineering. Courses at the 600 and 800-level are graduate courses open, with the consent of the instructor, to students with senior standing.

CREDITS TO TOTAL A MINIMUM OF 126

#### CONCENTRATIONS

The General Technical Electives and the Chemical Engineering Electives can be coupled to provide a more intense concentration in an area of interest. The grouping below is an example of this approach.

#### CHEMISTRY

CHEM 457	Inorganic Chemistry
CHEM 527	Introductory Biochemistry
CHEG 606	Introduction to Catalysis
CHEG 616	Chemistry and Physics of Surfaces and Interfaces

CHEG 617 Colloid Science and Engineering

#### HONORS BACHELOR OF CHEMICAL ENGINEERING

A recipient of the Honors Bachelor of Chemical Engineering must satisfy the following:

1. All requirements for the Bachelor of Chemical Engineering degree.
2. All generic University requirements for the Honors Degree (see the Honors Experience). Graduate courses approved for this purpose by the department may be counted as Honors courses.

#### DEPARTMENTAL STANDARDS

The department has rigorous standards for admission into the courses in the department. These standards have evolved over time and are intended to promote success in the sequential development of the material. In general students must have a minimum grade of C- in all chemical engineering prerequisite courses to qualify for admission to the next course. Please read the course descriptions for the specific prerequisites and corequisites.

#### GRADUATION REQUIREMENTS

\* A minimum grade of C- in all other Chemical Engineering courses counted towards graduation.

\* A biology requirement that can be fulfilled by any of the following three options:

o Advance Placement – a score of 4 or 5 on the College Board Biology AP exam or a score of 6 or 7 on the International Baccalaureate Higher Level exam.

o Introductory Biology (BISC 207) or an equivalent course as approved by the student's academic advisor

o Biochemistry (CHEM 527, 3 credits) or equivalent.

#### MINOR IN BIOCHEMICAL ENGINEERING

A minor in Biochemical Engineering may be earned by a student in any University bachelor's degree program through successful completion of a minimum of 19 credits as described below. This degree provides students with an opportunity to study new advances in biochemistry and the biological sciences integrated with engineering analysis. Before

beginning these courses the student must meet the required course prerequisites. A minimum grade of C- is required in all of the courses completed for the minor.

To obtain a Minor in Biochemical Engineering the student must take the following four required courses:

BISC 207	Introductory Biology I
BISC 401	Molecular Biology of the Cell
CHEG 620	Biochemical Engineering
CHEM 527	Introduction to Biochemistry
or CHEM 641/CHEM 642	Biochemistry I/II

(sequence may substitute for CHEM 527)

AND the students must take any TWO of the following courses:

BISC 403	Genetic and Evolutionary Biology
BISC 471	Introductory Immunology
BISC 484	Computer Based Genetics Laboratory
CHEG 460	Introduction to Systems Biology
CHEG 621	Metabolic Engineering
CHEM 643	Intermediary Metabolism
CHEM 644	Mechanisms of Enzyme Catalysis
CHEM 645	Protein Structure and Function
CHEM 646	DNA-Protein Interactions
CHEM 648	Membrane Biochemistry
CHEM 649	Molecular Biophysics
MEEG 486	Cell and Tissue Transport
UNIV 401/UNIV 402	Senior Thesis (3 credits, upon approval)

Other courses in Chemical Engineering, Chemistry or Biology can be included in the list with the prior approval of Professor Anne Robinson at (302) 831-0550 or [asr@udel.edu](mailto:asr@udel.edu). For inquiries about the Biochemical Engineering Minor, please contact Professor Robinson.

#### CHEMICAL ENGINEERING CURRICULUM MASTER'S-BACHELOR'S PROGRAM

Under unusual circumstances, a highly-qualified student may earn a Bachelor of Chemical Engineering and a Master's of Chemical Engineering in four years. This program assumes that the student enters with advanced sophomore standing and is able to cope with at least one term of a substantial overload. Interested students should contact the department for further information and a sample schedule. It should be noted that, in order to ensure a broad educational experience, the Department does not admit Delaware undergraduates to its PhD program unless they

have at least three years of industrial experience or have earned a master's degree at another institution.

#### Civil and Environmental Engineering

Telephone: (302) 831-2442  
<http://www.ce.udel.edu>  
Faculty Listing: <http://www.ce.udel.edu/directories/faculty.html>

The Civil and Environmental Engineering Department offers programs which lead to the degrees of Bachelor of Civil Engineering and Bachelor of Environmental Engineering, both with Honors Degree options, as well as minors in Civil Engineering and Environmental Engineering.

Traditionally, civil engineering has been identified with the planning and design of constructed facilities such as dams, bridges, buildings, roads, waterways, and tunnels. Modern civil engineering now addresses larger segments of societal infrastructure such as mass transportation systems, water resource exploration and management, environmental protection, coastal management, and off-shore structures. The Civil Engineering curriculum includes specialization options in structural engineering, geotechnical engineering, environmental engineering, hydraulic and ocean engineering, and transportation and construction engineering as shown by the listed Technical Electives.

The Educational Objectives of the Civil Engineering degree program are as follows:

1. Graduates will be prepared with a solid foundation in mathematics, sciences, and technical skills needed to analyze and design civil infrastructure systems.
2. Graduates will possess strong written, oral, and graphical communications skills, and will be able to function on multi-disciplinary teams.
3. Graduates will be familiar with current and emerging socioeconomic issues and the global context in which civil engineering is practiced.
4. Graduates will have an understanding of professional ethics and their societal responsibilities as a practicing engineer.
5. Graduates will have the ability to obtain professional licensure, will recognize the need for engaging in life-long learning, and will have the ability to assume leadership roles in and

outside of the profession.

6. Graduates will have the necessary qualifications for employment in civil engineering and related professions and for entry into advanced studies.

Areas concerned with pollution control, water supply, and water resource management are now considered to comprise the distinct discipline of Environmental Engineering. The Environmental Engineering curriculum is focused on causes, control, and prevention of environmental contamination, environmental facilities design and construction, and pollution transport and control processes.

The Educational Objectives of the Environmental Engineering degree program are as follows:

1. Graduates will be prepared with a solid foundation in mathematics, sciences, and technical skills needed to analyze and design environmental engineering systems.
2. Graduates will possess strong written and oral communications skills.
3. Graduates will be familiar with current and emerging environmental engineering and global issues, and have an understanding of ethical and societal responsibilities.
4. Graduates will have the ability to obtain professional licensure, and will recognize the need for engaging in life-long learning.
5. Graduates will have the necessary qualifications for employment in environmental engineering and related professions, for entry into advanced studies, and for assuming eventual leadership roles in their professions.

#### DEPARTMENTAL POLICES

In general, 300- and 400-level CIEG courses are open only to students majoring in civil or environmental engineering. Students who have declared a civil engineering or an environmental engineering minor and students enrolled in other departments of the College of Engineering may be enrolled in 300- and 400-level courses with the approval of their home department advisor. In some instances, other students may be permitted to enroll in selected 300 and 400-level courses, but they must have the permission of both the course instructor and the chair of the Civil and Environmental Engineering Department.

The Department has developed standards that require minimum grades in certain courses. These standards are intended to promote

success in the sequential development of the curriculum. The requirements for the civil and environmental engineering majors are as follows:

#### CIVIL ENGINEERING

- \* A minimum grade of C- in MATH 241 and MATH 242
- \* A minimum grade of C- in CHEM 103.
- \* A minimum grade of C- in PHYS 207.

#### ENVIRONMENTAL ENGINEERING

- \* A minimum grade of C- in MATH 241, MATH 242, and MATH 243
- \* A minimum grade of C- in CHEM 111 and CHEM 112 or CHEM 103 and CHEM 104
- \* A minimum grade of C- in PHYS 207
- \* A minimum grade of C- in CIEG 233

#### BACHELOR OF CIVIL ENGINEERING - CIVIL ENGINEERING

##### CURRICULUM CREDITS

Superior figures indicate year (1 = freshman, 2 = sophomore, 3 = junior, 4 = senior) and semester (F = fall, S = spring) in which the course should be taken.

##### UNIVERSITY REQUIREMENTS

ENGL 110	Critical Reading and Writing	
	(minimum grade C-)	31F
First Year Experience (FYE)		0-4
Breadth Requirements		12
Discovery Learning Experience (DLE)		3
Multi-cultural Course(s)		3

##### MAJOR REQUIREMENTS

Breadth Requirements 21  
The College of Engineering requires 21 total credits, which includes 9 additional credits above and beyond the 12 University Breadth Requirement credits. Coursework may include courses from the University Breadth Requirement list and the College of Engineering Supplemental Course list. See College of Engineering Breadth Requirements for a detailed description. For timely progress toward degree completion, 3 credits must satisfy the University Multicultural Requirement. All courses must be passed with a minimum grade of C-.

ENGL 410	Technical Writing	33F
COMM 212	Oral Communications in	

	Business	32F
CHEM 103	General Chemistry	41F
CISC 106	General Computer Science for Engineers	31F
MATH 241	Analytic Geometry and Calculus A	41F
MATH 242	Analytic Geometry and Calculus B	41S
MATH 243	Analytic Geometry and Calculus C	42F
MATH 351	Engineering Mathematics I	32S
MATH 353	Engineering Mathematics III	33F
PHYS 207	Fundamentals of Physics I	42F
CHEM 104	General Chemistry	41S
or		
GEOL 107	General Geology I	41S
or		
PHYS 208	Fundamentals of Physics II	41S
or		
PHYS 245	Introduction to Electricity and Electronics	41S
or		
BISC 207	Introductory Biology I	41S
or		
BISC 208	Introductory Biology II	41S
MSEG 302	Materials Science for Engineers	32S
EGGG 101	Introduction to Engineering	21F
CIEG 161	Freshman Design	31S
CIEG 211	Statics	32F
CIEG 212	Solid Mechanics	32S
CIEG 213	Civil Engineering Materials Laboratory	12S
CIEG 301	Structural Analysis	43F
CIEG 302	Structural Design	43S
CIEG 305	Fluid Mechanics	33F
CIEG 306	Fluid Mechanics Laboratory	13S
CIEG 311	Dynamics	32S
CIEG 315	Probability and Statistics for Engineers	33S
CIEG 320	Soil Mechanics	33F
CIEG 321	Geotechnical Engineering	33S
CIEG 323	Soil Mechanics Laboratory	13F
CIEG 331	Environmental Engineering	33S
CIEG 351	Transportation Engineering	33S
CIEG 440	Water Resources Engineering	34F
CIEG 451	Transportation Engineering Laboratory	14F
CIEG 461	Senior Design Project	44FS
CIEG 486	Engineering Project Management	34F

TECHNICAL ELECTIVES 9

Three courses must be taken; see current

department technical elective listing. This technical elective program is under constant review by the faculty. An updated list is available in the department office. Students should check with their advisors before selecting courses and should be aware that a formal mechanism exists to provide additional flexibility in the selection of their technical elective courses.

CREDITS TO TOTAL A MINIMUM OF 126

#### TECHNICAL ELECTIVES

The required course curriculum gives students a broad introduction to all the major areas of civil engineering offered by the program: Structural and Geotechnical Engineering, Environmental Engineering and Water Resources, Hydraulics and Ocean Engineering, and Transportation and Construction Engineering.

In addition, three technical elective courses in the Civil Engineering curriculum give students the opportunity to complete their education by concentrating in an area of special interest. The technical electives can also be chosen to provide a more general civil engineering education.

The following is a list of departmental technical electives approved for a concentration in one of the above mentioned areas or in general civil engineering. Some of these courses may not be offered a particular year. A current list is available in the department office. Some courses offered in other departments may also be approved as technical electives. Students should check with their advisors before selecting courses.

#### General Civil Engineering

CIEG 401	Introduction to the Finite Element Method
CIEG 407	Building Design
CIEG 409	Forensic Engineering
CIEG 452	Transportation Facilities Design
CIEG 471	Introduction to Coastal Engineering

Environmental and Water Resource Engineering

CIEG 430	Water Quality Modeling
CIEG 433	Hazardous Waste Management
CIEG 436	Recycling & Waste Management
CIEG 437	Water and Wastewater Quality
CIEG 443	Watershed Engineering, Planning and Design

CIEG 468	Principles of Water Quality Criteria
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CIEG 498	Groundwater Flow & Contaminant Transport
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BISC 641	Microbial Ecology
BREG 628	Land Application of Wastes
CHEM 213	Elementary Organic Chemistry
CHEM 214	Elementary Biochemistry
CHEM 220	Quantitative Analysis
CHEM 418	Introduction to Physical Chemistry
ELEG 681	Remote Sensing of Environment
GEOL 421	Environmental and Applied Geology

Hydraulic and Ocean Engineering	
CIEG 401	Introduction to the Finite Element Method
CIEG 407	Building Design
CIEG 422	Earth Structures Engineering
CIEG 437	Water and Wastewater Quality
CIEG 471	Introduction to Coastal Engineering

Structures and Geotechnical Engineering	
CIEG 401	Introduction to the Finite Element Method
CIEG 407	Building Design
CIEG 408	Introduction to Bridge Design
CIEG 409	Forensic Engineering
CIEG 421	Foundation Engineering
CIEG 422	Earth Structures Engineering
CIEG 427	Deep Foundations
CIEG 428	Ground Improvement Methods

Transportation and Construction Engineering	
CIEG 452	Transportation Facilities Design
CIEG 453	Roadway Geometric Design
CIEG 454	Urban Transportation Planning
GEOG 328	Transportation Geography
STAT 420	Data Analysis and Nonparametric Statistics

## HONORS BACHELOR OF CIVIL ENGINEERING

A recipient of the Honors Bachelor of Civil Engineering must satisfy the following:

1. All requirements for the Bachelor of Civil Engineering degree.
2. All generic University requirements for the Honors Degree. Graduate courses approved for this purpose by the department may be counted as Honors courses.
3. The Honors Thesis must be within the disciplines of Civil and Environmental Engineering. It must be supervised by a faculty member from the Department of Civil and Environmental Engineering and successfully presented orally in front of a committee

approved by the department Undergraduate Committee.

## MINOR IN CIVIL ENGINEERING

A minor in Civil Engineering may be earned by a student in any University bachelor's degree program through successful completion of a minimum of 21 credits in Civil Engineering and engineering mechanics. Before beginning the Civil Engineering courses, the student must meet the required mathematics and physics prerequisites. A grade of C- or better is required in all of the courses completed for the minor. The required Civil Engineering and engineering mechanics courses are the following:

CIEG 211	Statics	3
CIEG 212	Solid Mechanics (Lab optional)	3
CIEG 311	Dynamics	3
CIEG 305	Fluid Mechanics (Lab optional)	3

Further, an additional 9 credits (3 courses) in Civil Engineering must be taken of which at least 6 credits must be at the 300-level or higher. Those courses shall be selected with the specific advice of an advisor in the Civil and Environmental Engineering department to meet each student's objectives. For students oriented toward earth sciences these might include CIEG 320, CIEG 323 and CIEG 321; for those interested in the environment, CIEG 233 and CIEG 331; for those interested in urban topics, CIEG 331 and CIEG 351; for those with interests in construction and structures, CIEG 301 and CIEG 302; for those interested in the oceans, CIEG 440 and CIEG 471.

Accomplishment of a minor in Civil Engineering has many advantages for students who are earning degrees in other sciences such as geology or in other professional areas such as business administration, but it must be understood that meeting the requirements for a minor in Civil Engineering without fulfilling the remaining requirements for an accredited engineering degree does not provide the breadth and depth of knowledge required to be a Civil Engineer.

## BACHELOR OF ENVIRONMENTAL ENGINEERING: ALL CONCENTRATIONS

### CURRICULUM CREDITS

Superior figures indicate year (1 = freshman, 2 = sophomore, 3 = junior, 4 = senior) and semester (F = fall, S = spring) in which the course should be taken.

## UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing  
(minimum grade C-) 3  
First Year Experience (FYE) 0-4  
Breadth Requirements 12  
Discovery Learning Experience (DLE) 3  
Multi-cultural Courses 3

## COLLEGE REQUIREMENTS

Breadth Requirements 21  
The College of Engineering requires 21 total credits, which includes 9 additional credits above and beyond the 12 University Breadth Requirement credits. Coursework may include courses from the University Breadth Requirement list and the College of Engineering Supplemental Course list. See College of Engineering Breadth Requirements for a detailed description. For timely progress toward degree completion, 3 credits must satisfy the University Multicultural Requirement. All courses must be passed with a minimum grade of C-.

## MAJOR REQUIREMENTS

### Core Courses for the Major:

ENGL 410 Technical Writing 32F  
MATH 241 Analytic Geometry and  
Calculus A 41F  
MATH 242 Analytic Geometry and  
Calculus B 41S  
MATH 243 Analytic Geometry and  
Calculus C 42F  
MATH 351 Engineering Math I 32S  
PHYS 207 Fundamentals of Physics 41S  
BISC 207 Introductory Biology I 42S  
CISC 106 General Computer Science for  
Engineers 31F  
CHEG 231 Chemical Engineering  
Thermodynamics 33F

Computer Elective (one of the following two  
courses must be taken)

BREG 209 Technical and Computer Aided  
Drafting 32S  
FREC 480 Geographic Info Systems in  
Natural Resource Mgmt 42S

EGGG 101 Introduction to Engineering 21F  
CIEG 211 Statics 32F  
CIEG 233 Environmental Engineering  
Processes 32F  
CIEG 305 Fluid Mechanics 33F  
CIEG 306 Fluid Mechanics Laboratory 13S  
CIEG 315 Probability and Statistics for  
Engineers 33S  
CIEG 337 Environmental Engineering

Laboratory 33S  
CIEG 434 Air Pollution Control 34S  
CIEG 436 Processing, Recycling,  
Management of Solid Waste 34F  
CIEG 437 Water & Wastewater Quality 34S  
CIEG 438 Water and Wastewater  
Engineering 33F  
CIEG 440 Water Resources Engineering 33F  
CIEG 461 Senior Design Project 44F,S

Beyond these core courses, one of the four concentrations listed below must also be chosen (see curricula at bottom of page.):

- \* Contaminant Transport and Control Processes
- \* Environmental Facilities Design and Construction
- \* Environmental Biotechnology
- \* Water Resources and Water Quality

The concentration determines which chemistry sequence is needed and which technical electives should be taken as a core group. For the freshman chemistry courses, if a student's chemistry background is sufficiently strong, they are advised to take CHEM 111/CHEM 112 but CHEM 103/CHEM 104 is acceptable for most concentrations.

Each concentration also requires additional technical elective courses to provide the desired focus at the intermediate and advanced levels. Beyond the set of specific core technical electives for the concentration, the remaining technical electives can then be chosen to further pursue this direction of study, or to provide a more diversified environmental engineering education. All technical electives must be upper level courses in engineering, the sciences, computer science, or mathematics.

The chemistry courses and the core technical electives are listed below for each concentration.

CREDITS TO TOTAL A MINIMUM OF 125

## **BACHELOR OF ENVIRONMENTAL ENGINEERING - ENVIRONMENTAL ENGINEERING (CONTAMINANT TRANSPORT AND CONTROL PROCESSES)**

Physical and chemical processes for pollutant transport and remediation.

## CURRICULUM CREDITS

See University and College requirements.

CHEM 111	General Chemistry*	3
CHEM 112	General Chemistry*	3
CHEM 220	Quantitative Analysis	3
CHEM 221	Quantitative Analysis Laboratory I	1
CHEG 325	Chemical Engineering Thermodynamics	3
CHEG 332	Chemical Engineering Kinetics	3
CHEG 342	Heat and Mass Transfer	3
CHEG 443	Physical Chemistry I	3
Additional technical electives, including 3 cr. of Earth Science**		10

\*The alternative coursework CHEM 103/CHEM 104 is also acceptable.

\*\*Advisor should be consulted to ensure that the Earth Science requirement is met through an appropriate technical elective.

## **BACHELOR OF ENVIRONMENTAL ENGINEERING - ENVIRONMENTAL ENGINEERING (ENVIRONMENTAL FACILITIES DESIGN AND CONSTRUCTION)**

Engineering and constructing the systems for air, water, and wastewater purification.

## CURRICULUM CREDITS

See University and College requirements.

CHEM 103	General Chemistry	4
CHEM 104	General Chemistry	4
CIEG 212	Solid Mechanics	3
CIEG 213	Civil Engineering Materials Lab I	1
CIEG 301	Structural Analysis	4
CIEG 302	Structural Design	4
CIEG 320	Soil Mechanics	3
CIEG 323	Soil Mechanics Laboratory	1
Additional technical electives, including 3 cr. of Earth Science*		8

\*Advisor should be consulted to ensure that the Earth Science requirement is met through an appropriate technical elective.

## **BACHELOR OF ENVIRONMENTAL ENGINEERING - ENVIRONMENTAL ENGINEERING (ENVIRONMENTAL BIOTECHNOLOGY)**

Biological and microbial aspects of contaminant behavior in natural and engineered systems.

## CURRICULUM CREDITS

See University and College requirements.

CHEM 103	General Chemistry	4
CHEM 104	General Chemistry	4
CHEM 331	Organic Chemistry	3
CHEM 333	Organic Chemistry Lab	1
PLSC 319	Environmental Soil Microbiology	4
BISC 300	Introduction to Microbiology	4
CHEM 342	Introduction to Biochemistry	3
Additional technical electives, including 3 cr. of Engineering topics*		9

\*Advisor should be consulted to ensure that the Engineering Topic requirement is met through appropriate technical electives.

## **BACHELOR OF ENVIRONMENTAL ENGINEERING - ENVIRONMENTAL ENGINEERING (WATER RESOURCES AND WATER QUALITY)**

Technical issues associated with providing, maintaining, and improving the supply and quality of surface and groundwaters.

## CURRICULUM CREDITS

See University and College requirements.

CHEM 103	General Chemistry	4
CHEM 104	General Chemistry	4
EGTE 321	Storm Water Management	4
CIEG 468	Principles of Water Quality Criteria	3
CIEG 498	Groundwater Flow and Contaminant Transport	3
CIEG 430	Water Quality Modeling	3
Additional technical electives		11

## TECHNICAL ELECTIVES

Additional Recommended Technical Electives  
Students in any of the concentrations should consider the technical electives listed for the other concentrations. In addition, the following courses qualify as technical electives.

BISC 641	Microbial Ecology
CHEM 444	Physical Chemistry
CIEG 321	Geotechnical Engineering
CIEG 433	Hazardous Waste Management
CIEG 636	Biological Aspects of Environmental Engineering
GEOL 421	Environmental and Applied Geology
GEOL 446	General Geochemistry
MATH 352	Engineering Mathematics II

MATH 426	Introduction to Numerical Analysis and Algorithmic Computation
MSEG 302	Materials Science
PLSC 608	Environmental Soil Chemistry
PLSC 619	Soil Microbiology

Note: This list is not exhaustive. Consult your advisor.

### HONORS BACHELOR OF ENVIRONMENTAL ENGINEERING

A recipient of the Honors Bachelor of Environmental Engineering must satisfy the following:

1. All requirements for the Bachelor of Environmental Engineering degree.
2. All generic University requirements for the Honors Degree (See Description). Graduate courses approved for this purpose by the department may be counted as Honors courses.
3. The Honors Thesis must be within the disciplines of Civil and Environmental Engineering and successfully presented orally in front of a committee approved by the department Undergraduate Committee.

### MINOR IN ENVIRONMENTAL ENGINEERING

A minor may be earned by a student in any University bachelor's degree program through the successful completion of a minimum of 18 credits as described below. Before beginning the Environmental Engineering courses, the student must meet the required mathematics, physics, and other prerequisites for each course. A grade of C- or better is required in all of the courses completed for the minor.

One chemistry course is required (4 credits):  
 CHEM 104\* General Chemistry 4  
 \*Can be replaced with CHEM 112

Two environmental engineering courses (6 credits) are required:  
 CIEG 233\* Environmental Engineering Processes 3  
 CIEG 305\*\* Fluid Mechanics (Lab optional) 3  
 \*Can be replaced with CIEG 331 or CHEG 112  
 \*\*Can be replaced with MEEG 331 or CHEG 341

Further, an additional 9 credits (3 courses) in environmental engineering must be taken from the following:

CIEG 430	Water Quality Modeling	3
CIEG 433	Hazardous Waste Management	3
CIEG 434	Air Pollution Control	3
CIEG 436	Processing, Recycling, Management of Solid Wastes	3
CIEG 438*	Water and Wastewater Engineering	3
CIEG 440	Water Resources Engineering	3
CIEG 498	Groundwater Flow and Containment Transport	3

\*Will not count if CIEG 331 is taken in place of CIEG 233

Courses shall be selected from the above list with the specific advice of an advisor in the Civil and Environmental Engineering department to meet each student's objectives. Other courses in Civil and Environmental Engineering may be included in the above list with prior approval of a representative from the Department of Civil and Environmental Engineering. For inquiries about the environmental engineering minor contact Professor Pei Chiu at (302) 831-3104 (pei@ce.udel.edu).

Civil and Chemical engineering majors would be able to pursue the minor by selecting their required technical and science electives appropriately. No additional credits beyond what is required by their major would be necessary to obtain an Environmental Engineering minor for these students. Mechanical Engineering students would need to select their required technical electives appropriately and take one additional course - CHEM 104.

### 4+1 Bachelor of Civil Engineering/Master of Civil Engineering 4+1 Bachelor of Environmental Engineering/Master of Civil Engineering

Telephone: (302) 831-2442  
<http://www.ce.udel.edu>  
 Faculty Listing: <http://www.ce.udel.edu/directories/faculty.html>

Well-qualified Civil and Environmental Engineering majors may apply to the 4+1 program which would culminate in the student earning a Bachelor degree in Civil Engineering (BCE) or Environmental Engineering (BENV) and a Master of Civil Engineering (MCE) degree within 5 years. The program is limited to University of Delaware undergraduates pursuing the BCE or BENV degree, with a minimum Grade Point Average of 3.25 at the time of application.

Students must complete at least 90 credits toward the undergraduate degree before they can be enrolled in the program. Only full-time students are eligible.

## Computer Science

Telephone: (302) 831-2712  
E-mail: [ugradprgm@cis.udel.edu](mailto:ugradprgm@cis.udel.edu)  
<http://www.cis.udel.edu>  
Faculty Listing: <http://www.cis.udel.edu/people/faculty>

The Department of Computer and Information Sciences offers four-year undergraduate programs leading to one of three degrees. The Bachelor of Arts degree in Computer Science is intended for students who want the breadth of a liberal arts education with a major in computer science. The Bachelor of Science degree in Computer Science provides a strong technical education in computer systems, software development, computational applications, and theory of computation. The Bachelor of Science degree in Information Systems is designed for students who want to apply expertise in computer science to the solution of business problems. In conjunction with the University Honors Program, the Department also offers a program of study leading to an Honors BA or an Honors BS. Honors students are strongly encouraged to become involved in faculty research projects. The BA degree requires a minimum grade of C- in every CISC course used toward the major.

Courses are also provided for students in other areas who desire an understanding of the application of computers to the subject of their major interest. The Department offers minors in bioinformatics and computer science. In many courses, problem solutions require the use of computers located throughout campus. These computers are available to undergraduate students for use with both coursework and research.

## COMPUTER SCIENCE (BA)

### CURRICULUM CREDITS

University and College Requirements.

### MAJOR REQUIREMENTS

CISC 108	Introduction to Computer Science I	3
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CISC 181	Introduction to Computer Science II	3
CISC 220	Data Structures	3
CISC 260	Machine Organization and Assembly Language	3
CISC 275	Introduction to Software Engineering	3

Eighteen credits of Computer Science numbered 301 or above, approved by the student's advisor 18

MATH 210	Discrete Mathematics I	3
MATH 241	Analytic Geometry and Calculus A	4

Minimum grade C- in the CISC courses.  
Minimum grade C- in MATH 210 for students who wish to take CISC 303 or CISC 304.

### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

## COMPUTER SCIENCE (BS)

### CURRICULUM CREDITS

#### UNIVERSITY REQUIREMENTS

ENGL 110	Critical Reading and Writing	3
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(minimum grade C-)  
First Year Experience (FYE) 0-4  
Discovery Learning Experience (DLE) 3  
Multi-cultural Courses 3

#### COLLEGE REQUIREMENTS

Writing: (minimum grade C-) 3  
A second writing course involving significant writing experience including two papers with a combined minimum of 3,000 words to be submitted for extended faculty critique of both composition and content. This course must be taken after completion of 60 credit hours. Appropriate writing courses are normally designated in the semester's Registration Booklet. (See list of courses approved for Second Writing Requirement.)

#### BREADTH REQUIREMENTS

Six credits from each of the following groups 18  
Group A: Understanding and appreciation of the creative arts and humanities.

Group B: The study of culture and institutions

over time.

Group C: Empirically based study of human beings and their environment.

#### MAJOR REQUIREMENTS

CISC 108	Introduction to Computer Science I (minimum grade C-) 3
CISC 181	Introduction to Computer Science II (minimum grade C-) 3
CISC 220	Data Structures (minimum grade C-) 3
CISC 260	Machine Organization and Assembly Language (minimum grade C-) 3
CISC 275	Introduction to Software Engineering 3
CISC 303	Automata Theory 3
CISC 320	Introduction to Algorithms 3
CISC 360	Computer Architecture 3
CISC 361	Operating Systems 3
CISC 475	Advanced Software Engineering 3

An additional nine credits of Computer Science numbered 301 or above, approved by the student's advisor 9

Twelve credits in advanced courses in an advisor-approved

CISC concentration 12

Students are encouraged to explore how other subject areas impact and are impacted by computer science. An approval form signed by the CISC advisor is required. Concentration courses must be distinct from other CISC requirements.

MATH 205	Statistical Methods 3-4
or	
MATH 350	Probability Theory
MATH 210	Discrete Mathematics II (minimum grade C-) 3
MATH 241/MATH 242	Analytic Geometry and Calculus A/B 8

Twelve credits in science courses including one of the following sequences of laboratory science courses: 12

PHYS 207 - PHYS 208	Fundamentals of Physics
or	
CHEM 103 - CHEM 104	General Chemistry
or	
BISC 207 - BISC 208	Introductory Biology
or	
GEOL 105/GEOL 115/ GEOL 107	Geological Hazards and Laboratory, General Geology

A course chosen from MATH 243, CISC 304, MATH 349, or a substitute from the list at <http://www.cis.udel.edu/drupalWeb/mathrecommendations> approved beforehand

in writing by the advisor 3-4

ENGL 312	Written Communications in Business 3
or	
ENGL 410	Technical Writing
CISC 355	Computers, Ethics and Society 3
CPEG 202	Introduction to Digital Systems 3

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

#### INFORMATION SYSTEMS (BS)

##### CURRICULUM CREDITS

##### UNIVERSITY REQUIREMENTS

ENGL 110	Critical Reading and Writing 3 (minimum grade C-)
First Year Experience (FYE)	0-4
Discovery Learning Experience (DLE)	3
Multi-cultural Courses	3

##### COLLEGE REQUIREMENTS

Writing Course: (minimum grade C-) 3 (A second writing course taken after completion of 60 credit hours. The course must be selected from among the courses designated in the Second Writing Requirement list.)

##### BREADTH REQUIREMENTS

Six credits from each of the following groups 18  
Group A: Understanding and appreciation of the art and humanities.

Group B: The study of culture and institutions over time.

Group C: Empirically based study of human beings and their environment.

##### MATHEMATICS AND SCIENCE REQUIREMENTS

MATH 241	Analytic Geometry and Calculus A 4
MATH 210	Discrete Mathematics I 3
MATH 205	Statistical Methods 4

Laboratory Science Course:

Must be one of the following two-semester

sequences: 8  
 PHYS 207/PHYS 208 Fundamentals of Physics  
 PHYS 201/PHYS 202 Introductory Physics  
 CHEM 103/CHEM 104 General Chemistry  
 BISC 207/BISC 208 Introductory Biology  
 GEOL 105/GEOL 115/GEOL 107 Geological Hazards and Laboratory, General Geology

**OTHER NON-MAJOR REQUIREMENTS**

ENGL 312 Written Communications in Business  
 or  
 ENGL 410 Technical Writing 3  
 COMM 212 Oral Communication in Business 3  
 CISC 355 Computers, Ethics, and Society 3

**MAJOR REQUIREMENTS**

CISC 108 Introduction to Computer Science I (minimum grade C-) 3  
 CISC 181 Introduction to Computer Science II (minimum grade C-) 3  
 CISC 220 Data Structures (minimum grade C-) 3  
 CISC 250 Business Telecommunication Networks 3  
 CISC 275 Introduction to Software Engineering 3  
 CISC 437 Database Systems 3  
 CISC 475 Advanced Software Engineering 3  
 MISY 430 Systems Analysis and Implementations 3

**BUSINESS CORE REQUIREMENTS**

ACCT 207 Accounting I 3  
 ACCT 208 Accounting II 3  
 BUAD 306 Operations Management 3  
 BUAD 309 Management and Organizational Behavior 3  
 BUAD 301 Introduction to Marketing 3  
 or  
 FINC 311 Principles of Finance

**IS CORE REQUIREMENTS**

MISY 431 Technological Problem Solving 3  
 MISY 432 Problem Solving Project Management 3  
 Electives (3 courses) 9

These 3 additional courses are selected from CISC 260, CISC courses numbered 300 or above, BUAD 301, FINC 311, MISY courses numbered 300 or above (except MISY 330) and approved by the student's advisor.

**ELECTIVES**

In addition to the required courses, sufficient credits must be taken to meet the minimum credits required for the degree.

CREDITS TOTOTAL A MINIMUM OF 124

**HONORS- COMPUTER SCIENCE (BA)**

**HONORS- COMPUTER SCIENCE (BS)**

**HONORS- INFORMATION SYSTEMS (BS)**

For these honors degrees, the recipient must complete:

1. All requirements for the corresponding regular degree program: Bachelor of Arts in Computer Science, the Bachelor of Science in Computer Science, or the Bachelor of Science in Information Systems.
2. All of the University's generic requirements for the Honors Degree. Note: Graduate courses in CISC numbered 600 or above will count as Honors courses in the major.
3. The student must have a cumulative grade point index of at least 3.4 at the time of registration for UNIV 401.

**MINOR IN BIOINFORMATICS**

A minor in bioinformatics consists of a total of 21 or more credits in the Life Sciences and Computer and Information Sciences, including BISC 401, ANSC 644, CISC 220, CISC 437, and CHEM 527. A grade of C- or better must be earned in all required courses for the minor.

Besides these required courses, students wishing to minor in Bioinformatics must complete a senior thesis (6 credits), either by registering for UNIV 401 and UNIV 402, or through department sponsored research (e.g., CISC 466, Independent study). One Life Science and one Computer and Information Science faculty member must direct the research. The senior thesis committee must be composed of the two research directors and one additional member chosen in consultation with the two research directors.

**MINOR IN COMPUTER SCIENCE**

## **Electrical and Computer Engineering**

Telephone: (302) 831-2405  
E-mail: [dnelson@udel.edu](mailto:dnelson@udel.edu)  
<http://www.ece.udel.edu>  
Faculty Listing: <http://www.ece.udel.edu/people/faculty.php>

The Department of Electrical and Computer Engineering offers programs that lead to the degrees of Bachelor of Electrical Engineering and Bachelor of Computer Engineering, both with Honors Degree Options. The Electrical Engineering curriculum prepares graduates to enter the broad profession of modern electrical engineering. The Computer Engineering curriculum is more focused on the application of electrical engineering principles to the design of computers, networks of computers, or sometimes systems that include computers.

Both degrees strive to achieve four program Educational Objectives:

1. Graduates can apply a broad knowledge of mathematics, science, and computer/electrical engineering to engineering problems.
2. Graduates can communicate effectively and can work well with others.
3. Graduates can adapt to changes in engineering, technology, and society.
4. Graduates can assist the Electrical and Computer Engineering department in evaluating and improving its programs.

The first objective relates to the knowledge and skills obtained through the curriculum, the second to writing, speaking, and teamwork skills, the third to a strong preparation in basics of science and technology and an understanding of life-long learning opportunities, and the fourth to an expectation that graduates will "give back" and help improve the program for future students.

Coursework in electrical and computer engineering starts with the first term of the freshman year, with successive years building on prerequisite courses and including an unusually high number of courses with laboratories.

There are four basic parts to the Delaware curriculum in engineering: (1) a core group of courses, (2) a group of foundation electives, (3) an elective group of technical courses, and (4) a "breadth" component that includes six courses in the humanities and social sciences and two in

written communications.

The core group consists of required courses in mathematics, chemistry, computer science, and electrical and computer engineering.

Technical electives are chosen from a set of approved courses in the fields of engineering, mathematics, natural science, and computer science. These electives provide the student with the opportunity to study a particular area of interest at a greater depth. The technical elective courses chosen by the student must follow the specific guidelines for the student's major and be approved by the departmental academic advisor. Students must take at least four credits in courses designated as "design."

The breadth component must include courses from the humanities and from the social sciences, including courses at an advanced level. Electrical and Computer Engineering students must include two writing courses (ENGL 110 and one from a list of four upper level English courses).

Any deviation from these requirements must be approved by the ECE Department Chair or his/her designee.

### **DEPARTMENTAL REQUIREMENTS**

To qualify for sophomore standing, students must have satisfactorily completed MATH 241, MATH 242, CISC 181, PHYS 207, and CPEG 202 by the end of the summer session of their freshman year. With few exceptions, students are expected to complete this program in eight regular semesters. With electrical and computer engineering courses being offered only once each year, it is imperative that students follow as closely as possible the course sequences outlined below.

### **BACHELOR OF ELECTRICAL ENGINEERING**

#### **CURRICULUM CREDITS**

Superior figures indicate year (1 = freshman, 2 = sophomore, 3 = junior, 4 = senior) and semester (F = fall, S = spring) in which the course should be taken.

#### **UNIVERSITY REQUIREMENTS**

ENGL 110 Critical Reading and Writing  
(minimum grade C-) 31F  
First Year Experience (FYE) 0-4

Breadth Requirements 12  
 Discovery Learning Experience (DLE) 3  
 Multi-cultural Courses 3

**MAJOR REQUIREMENTS**

Breadth Requirements 21  
 The College of Engineering requires 21 total credits, which includes 9 additional credits above and beyond the 12 University Breadth Requirement credits. Coursework may include courses from the University Breadth Requirement list and the College of Engineering Supplemental Course list. See College of Engineering Breadth Requirements for a detailed description. For timely progress toward degree completion, 3 credits must satisfy the University multi-cultural requirement. All courses must be passed with a minimum grade of C-.

One of the following four courses must be taken:  
 33F

- ENGL 301 Expository Writing
- ENGL 312 Written Communications in Business
- ENGL 410 Technical Writing
- ENGL 413 Topics in Professional Writing
- EGGG 101 Introduction to Engineering (FYE) 21F
- MATH 241 Analytic Geometry and Calculus A 41F
- MATH 242 Analytic Geometry and Calculus B 41S
- MATH 243 Analytic Geometry and Calculus C 42F
- MATH 341 Differential Equations with Linear Algebra I 32S
- MATH 342 Differential Equations with Linear Algebra II 33F
- CHEM 103 General Chemistry 41F
- PHYS 207 Fundamentals of Physics I 41S
- PHYS 208 Fundamentals of Physics II 42F
- CISC 106 General Computer Science for Engineers 31F
- CISC 181 Introduction to Computer Science II 31S
- CISC 220 Data Structures 32S
- CPEG 202 Introduction to Digital Systems 31S
- CPEG 222 Microprocessor Based Systems 42F
- ELEG 205 Analog Circuits I 42F
- ELEG 305 Signals and Systems 32S
- ELEG 309 Electronic Circuit Analysis I 42S
- ELEG 310 Random Signals and Noise 33S
- ELEG 320 Field Theory I 43F
- ELEG 340 Solid State Electronics 33F

ELEG 491 Ethics and Impacts of Engineering 24S

Four of the following six foundation elective courses must be taken: 12

- ELEG 306 Digital Signal Processing 3
- ELEG 312 Electronic Circuit Analysis II 4
- ELEG 341 Solid State Electronics II 3
- ELEG 403 Communication Systems Engineering 3
- ELEG 413 Field Theory II 3
- ELEG 418 Digital Control Systems 3

Design Requirement (DLE) 44

In addition to the content of the normal program, every student must take at least four credits in ELEG courses designated as "design." Regularly offered design courses include ELEG 410, ELEG 450 and ELEG 456. Other courses may be offered periodically which satisfy the design requirement. Students should consult with their advisor before selecting their design course or courses.

Technical Electives 15

In addition to the design requirement, each student, in consultation with their advisor, must select a program of technical electives satisfying the following: (1) With some exceptions, technical electives consist of 300-level or above engineering, mathematics, natural sciences, and computer science courses. With the permission of the student's advisor, certain 200-level courses, such as PHYS 211, are permitted. (2) At least 15 technical elective credits must be taken. (3) Of the 15 technical elective credits, at least 9 must be in CPEG or ELEG courses. (4) Of the 9 credits in ELEG or CPEG, at least 6 must be in 400-level or above ELEG or CPEG courses.

CREDITS TO TOTAL A MINIMUM OF 126

**HONORS BACHELOR OF ELECTRICAL ENGINEERING**

A recipient of the Honors Bachelor of Electrical Engineering must satisfy the following:

1. All requirements for the Bachelor of Electrical Engineering degree.
2. All generic University requirements for the Honors Degree. Graduate courses approved for this purpose by the department may be counted as Honors courses

## BACHELOR OF COMPUTER ENGINEERING - COMPUTER ENGINEERING

### CURRICULUM CREDITS

Superior figures indicate year (1 = freshman, 2 = sophomore, 3 = junior, 4 = senior) and semester (F = fall, S = spring) in which the course should be taken.

### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing  
(minimum grade C-) 31F  
First Year Experience (FYE) 0-4  
Breadth Requirements 12  
Discovery Learning Experience (DLE) 3  
Multi-cultural Course(s) 3

### MAJOR REQUIREMENTS

Breadth Requirements 21  
The College of Engineering requires 21 total credits, which includes 9 additional credits above and beyond the 12 University Breadth Requirement credits. Coursework may include courses from the University Breadth Requirement list and the College of Engineering Supplemental Course list. See College of Engineering Breadth Requirements for a detailed description. For timely progress toward degree completion, 3 credits must satisfy the University multi-cultural requirement. All courses must be passed with a minimum grade of C-.

One of the following four courses must be taken:  
33F

ENGL 301	Expository Writing	
ENGL 312	Written Communications in Business	
ENGL 410	Technical Writing	
ENGL 413	Topics in Technical Writing	
EGGG 101	Introduction to Engineering	21F
MATH 241	Analytical Geometry and Calculus A	41F
MATH 242	Analytical Geometry and Calculus B	41S
MATH 243	Analytical Geometry and Calculus C	42F
MATH 341	Differential Equations & Linear Alg I	32S
MATH 342	Differential Equations & Linear Alg II	33F
PHYS 207	Fundamentals of Physics I	41S
PHYS 208	Fundamentals of Physics II	42F
CHEM 103	General Chemistry	41F
CISC 106	Introduction to Computer Science I	31F
CISC 181	Introduction to Computer	

	Science II	31S
CISC 220	Data Structures	32S
CISC 361	Operating Systems	33S

Students with adequate programming experience may substitute the CISC 181, CISC 220 and CISC 280 sequence for the CISC 106, CISC 181 and CISC 220 sequence.

CPEG 202	Introduction to Digital Systems	31S
CPEG 222	Microprocessor Systems	42F
CPEG 323	Introduction to Computer System Engineering	33F
CPEG 324	Computer Systems Design I	33S
CPEG 419	Computer Communications Networks	34F
ELEG 205	Analog Circuits I	42F
ELEG 305	Signals and Systems	32S
ELEG 309	Electronic Circuit Analysis I	42S
ELEG 310	Random Signals and Noise	33S
ELEG 320	Field Theory I	43F
ELEG 491	Ethics and Impacts of Engineering	24S

Two of the following five foundation elective courses must be taken: 6

ELEG 306	Digital Signal Processing	3
ELEG 312	Electronic Circuit Analysis II	4
ELEG 403	Communication Systems Engineering	3
ELEG 413	Field Theory II	3
ELEG 418	Digital Control Systems	3

Design Requirement 44

In addition to the normal program, every student must take at least four credits in a CPEG course designated as "design." Regularly offered CPEG design courses include CPEG 410, CPEG 422, and CPEG 460. Other courses may be offered irregularly which satisfy the design requirement. Students should consult with their advisor before selecting their design course or courses.

Technical Electives 12

In addition to the design requirement, each student, in consultation with their advisor, must select a program of technical electives satisfying the following: (1) With some exceptions, technical electives consist of 300-level or above engineering, mathematics, natural sciences, and computer science courses. With the permission of the student's advisor, certain 200-level courses, such as PHYS 211, are permitted. (2) At least 12 technical elective credits must be taken. (3) Of the 12 technical elective credits, at least 6 must be in CPEG or ELEG courses.

CREDITS TO TOTAL A MINIMUM OF 126

## HONORS BACHELOR OF COMPUTER ENGINEERING

A recipient of the Honors Bachelor of Computer Engineering must satisfy the following:

1. All requirements for the Bachelor of Computer Engineering degree.
2. All generic University requirements for the Honors Degree. Graduate courses approved for this purpose by the department may be counted as Honors courses.

## MINOR IN BIOELECTRICAL ENGINEERING

A minor in Bioelectrical Engineering may be earned by a student in any University bachelor's degree program. This minor provides students with an opportunity to integrate physiology and biological sciences with engineering aspects in signal measurement and processing. To qualify for a Minor in Bioelectrical Engineering, students must complete a minimum of 21 credits as described below with a minimum grade of C- in each course.

## CURRICULUM CREDITS

### Course Requirements

(1) All students must take the following three courses:

BISC 207(a)	Introductory Biology I	4
MATH 242	Analytic Geometry and Calculus B	4
PHYS 202(b)	Introductory Physics II	4
or		
PHYS 208(b)	Introductory Physics II	4

(2) And one of the following courses:

BISC 306	General Physiology	3
ELEG 471	Mathematical Physiology	3

(3) And two of the following courses(c):

ELEG 475	Image Processing with Biomedical Applications	3
ELEG 478	Introduction to Nano and Biophotonics	3
ELEG 479	Introduction to Medical Imaging Systems	3
ELEG 676	Bioinformatics and Biosystems Analysis I	3
ELEG 680	Immunology for Engineers	3
BISC 627	Neuroscience II	3
HESC 688	Electromyographic Kinesiology	3

TOTAL CREDITS 21

(a) BISC 208 cannot be substituted for BISC 207.

(b) It is understood that PHYS 201/PHYS 207 is taken before PHYS 202/PHYS 208.

(c) The listed 400 and 600-level courses are open to any student who has completed requirements (1) and (2) and the necessary prerequisites (or obtained permission of instructor). Other courses can be included upon approval by the minor administration committee.

Further inquiries about the Bioelectrical Engineering Minor can be made to Professor Takashi Buma at (302) 831-8447 or buma@ece.udel.edu.

## ENERGY AND ENVIRONMENTAL POLICY

The Center for Energy and Environmental Policy (CEEP), part of the College of Engineering, conducts interdisciplinary research and supports graduate and undergraduate study on the interlocking issues of energy, environment, and development. Work in CEEP is guided by theories of political economy and technology, environment, and society. Research programs currently organized in CEEP include sustainable development, environmental justice, global environmental change, energy efficiency and renewable energy applications, water conservation and management, and comparative energy and environmental policy.

## BACHELOR OF SCIENCE IN ENERGY AND ENVIRONMENTAL POLICY

### CENTER for ENERGY & ENVIRONMENTAL POLICY (CEEP)

John Byrne, Director of the Undergraduate Program,  
Distinguished Professor of Energy and Climate Policy,  
CEEP Director  
Telephone: (302) 831-8405  
<http://ceep.udel.edu>  
Faculty Listing: <http://ceep.udel.edu/people>

The Center for Energy and Environmental Policy (CEEP) offers an undergraduate degree in the interdisciplinary field of Energy and Environmental Policy (ENEP). The ENEP major offers an integrated set of courses in the fields of social and policy sciences, natural sciences, engineering and analytical methods to prepare its graduates with the necessary knowledge

and tools to enter professional positions in the fields of energy and environmental analysis, planning and policy development. Students are provided with the cross disciplinary knowledge and analytical skills to address local, national and global energy and environmental issues in complex, real world contexts. The program's faculty are drawn from the Colleges of Engineering, Agriculture and Natural Resources, Arts and Sciences, and Business and Economics.

The ENEP undergraduate degree is the only program in the state or region providing an undergraduate major that integrates a cross-disciplinary set of courses in policy analysis, economics, the social and natural sciences, and engineering to address the need to build a positive sustainable energy and environmental future. The unique nature of this major is that it combines the rigor and content knowledge of these disciplines to educate and prepare students to be effective decision makers and problem solvers in the energy and environmental sectors.

The undergraduate major in ENEP is designed to educate and build core competencies and skills for prospective practitioners who will work at the intersections of business, technology, government, research and civil society sectors seeking to improve energy and environmental policy.

Beyond the core courses, majors must choose to specialize in one of three concentrations:

1. Energy, Economics and Public Policy: provides an understanding of the influence of policy and economics on the development of the energy sector, with special emphases on sustainable energy development.
2. Energy, Environment and Society: prepares majors to understand and analyze GHG emissions projection scenarios such as those developed by the Intergovernmental Panel on Climate Change (IPCC) and to evaluate technology and policy options related to climate challenges. Coursework in social science, econometrics and statistical analysis as well as science and technology prepares students to conduct energy and environmental scenario analyses, policy simulations, and long-term policy analysis and planning.
3. Energy, Science and Technology: enables students to understand the scientific and technological constraints and opportunities that can effect sustainable energy development.

Courses bridge scientific and technological knowledge with an understanding of energy and environmental policy.

For all concentrations, students will be prepared to continue their education in graduate study in ENEP and related fields at the master's level. Each concentration also includes the experience of Internship fieldwork and a senior research paper.

Students transferring into the major from outside the University of Delaware will have their transcripts evaluated on a case-by-case basis.

#### Curriculum Credits UNIVERSITY REQUIREMENTS

ENGL 110	Critical Reading and Writing (minimum grade C-)	3
ENEP 117	(FYE) Science, Society and Energy Breadth Requirements	12
	Discovery Learning Experience (fulfilled by taking ENEP 364: Internship)	3
	Multicultural Course	3

#### BREADTH REQUIREMENTS

Group A: Analysis and appreciation of the creative arts and humanities	9
Group B: Study of culture and institutions over time	6
Group C: Empirically-based study of human beings and their environment	6
Group D: Study of natural phenomena through experiment or analysis	10

#### MAJOR REQUIREMENTS

Second Writing Course – 3 credits chosen from courses designated in online Registration Materials as satisfying the Arts and Sciences Second Writing Course Requirement. (This requirement may be fulfilled through a course taken to complete other course requirements.)  
3

#### Core Curriculum -

ENEP 250	Introduction to Energy Policy	3
PHYS 143	Energy, Technology and Society	3
ECON 151	Introduction to Micro-Economics: Prices and Markets	3
POSC 220 or UAPP 225	Introduction to Public Policy	3
GEOG 236	Crafting Public Policy	
	Conservation of Natural Resources: Global Issues	3

In addition to the Core Curriculum, the Breadth Requirements and the Major Requirements, students must choose one of the following concentrations:

Energy, Economics and Public Policy Concentration:

Required Advanced Courses

Choose 18 credits from the required advanced course list below.

ECON 300	Intermediate Microeconomic Theory	3
ENEP 402	Electricity Policy and Planning	3
FREC 343/ECON 343	Environmental Economics	3
POSC 350	Politics and the Environment	3

One of the following:

ENEP 468	Research in Global Energy Policies	3
ENEP 470	Readings in U.S. Energy Policy	3

One of the following:

ECON 422	Econometric Methods & Models I	3
MATH 201	Introduction to Statistical Methods I	3
POSC 300	Data Analysis for Political Sciences	3
STAT 370	Introduction to Statistical Analysis I	3

Elective Advanced Courses

Choose 30 credits from the elective advanced course list below.

(other courses can be added with the approval of the advisor.)

BUAD 301	Introduction to Marketing	3
BUAD 472	Marketing, Society and the Environment(Prerequisite:BUAD 301)	3
COMM 425/POSC 425	Energy/Environmental Policy, Public Opinion, Media and Politics	3
ECON 152	Introduction to Macroeconomics	3
ECON 311	Economics of Developing Countries	3
ECON 360	Government Regulation of Business	3
ECON 422	Econometric Methods & Models I	3
ECON 426	Mathematical Economic Analysis	3
ECON 463	Economics of Regulation	3
ECON 471/FREC 471	Futures and Options	

	Markets	3
ENEP 410	Political Economy of Environment	3
ENEP 468	Research in Global Energy Policies	3
ENEP 470	Readings in U.S. Energy Policy	3
ENEP 426	Climate Change: Science, Policy and Political Economy	3
GEOG 250	Computer Methods in Geography	4
GEOG 372	Geographic Information Systems	3
GEOG 412	Physical Climatology	4
GEOG 428/UAPP 428	Land Use & Environmental Planning	3
GEOLOG 421	Environmental and Applied Geology	3
MATH 201	Introduction to Statistical Methods I	3
MATH 202	Introduction to Statistical Methods II	3
MATH 221	Calculus 1	3
MATH 241	Analytical Geometry and Calculus A	4
MATH 242	Analytical Geometry and Calculus B	4
PHIL 340	Cross Cultural Environmental Ethics	3
POSC 300	Data Analysis for Political Sciences	3
POSC 301	State and Local Government	3
POSC 311	Politics of Developing Nations	3
POSC 323	International Political Economy	3
STAT 370	Introduction to Statistical Analysis I	3
STAT 371	Introduction to Statistical Analysis II	3
UAPP 325	Public Policy Analysis	3
UAPP 410	Making Convincing Policy Arguments	3
UAPP 419	Policy Leadership and Ethics	3
UAPP 427	Evaluating Public Policy	3
UAPP 440	Contemporary Policy Issues	3
	Foreign Language (up to 8 credits)	8

Energy, Environment and Society Concentration:

Required Advanced Courses

ENEP 426	Climate: Science, Policy and Political Economy	3
POSC 350	Politics and the Environment	3
POSC 425/COMM425	Energy/Environment Policy, Public Opinion, Media and Politics	3
ECON 300	Intermediate Microeconomic	

Theory 3

### Elective Advanced Courses

Science/Methods - choose 12 credits from list below:

MATH 201	Introduction to Statistical Methods I	3
MATH 202	Introduction to Statistical Methods II	3
MATH 221	Calculus 1	3
MATH 241	Analytical Geometry and Calculus A	4
GEOG 250	Computer Methods for Geography and Environmental Science	4
GEOG 412	Physical Climatology (MATH 241 and GEOG 250 required)	4
GEOG 456	Hydro-Climatology (MATH 241 and 3)	3
GEOG 372	Geographic Information Systems (GIS)	3
ECON 422	Econometric Methods & Models I	3
POSC 300	Data Analysis for Political Sciences	3
STAT 370	Introduction to Statistical Analysis I	3
STAT 371	Introduction to Statistical Analysis II	3
STAT 408	Statistical Research Methods I	3
STAT 475	Statistics for Environmental Sciences	3

Social Science – choose 24 credits from list below:

ECON444/FREC 444	Economics of Environmental Management	3
ENEP 402	Electricity Policy and Planning	3
ENEP 410	Political Economy of the Environment	3
ENEP 468	Research in Global Energy Policies	3
ENEP 470	Readings in U.S. Energy Policy	3
FREC 343/ECON 343	Environmental Economics	3
FREC 424	Resource Economics	3
FREC 450	Topics in Environmental Law	3
GEOG 428/UAPP 428	Land Use & Environmental Planning	3
GEOL 112	Earth Resources and Public Policy	3
GEOL 304	Earth System Science	4
GEOL 421	Environmental and Applied Geology	3

PHIL 340	Cross Cultural Environmental Ethics	3
PHIL 448	Environmental Ethics	3
POSC 311	Politics of Developing Countries	3
POSC 323	International Political Economy	3
POSC 456	Disaster and Politics	3
SOCI 331	World Population, Profiles and Trends	3
SOCI 470	Environmental Sociology	3
SOCI 471	Disasters, Vulnerability and Development	3
UAPP 325	Public Policy Analysis	3
UAPP 427	Evaluating Public Policy	3
	Foreign Language (up to 8 credits)	8

Energy, Science and Technology Concentration:

### Required Advanced Courses

CHEM 103	General Chemistry	4
ECON 300	Intermediate Microeconomic Theory	3
ENEP 426	Climate Change: Science, Policy and Political Economy	3
MATH 241	Analytic Geometry and Calculus A	4
PHYS 201	Introductory Physics I	4

### Elective Advanced Courses

Choose 30 credits from the elective advanced course list below.

BUAD 301	Introduction to Marketing	3
BUAD 472	Marketing, Society and the Environment (Prerequisite: BUAD 301)	3
CHEM 104	General Chemistry II	4
ECON 311	Economics of Developing Countries	3
ELEG415/ELEG 615	Electric Power and Renewable Energy Systems	3
ELEG 491	Ethics and Impacts of Engineering	2
ENEP 402	Electricity Policy and Planning	3
ENEP 410	Political Economy of Environment	3
ENEP 468	Research in Global Energy Policies	3
ENEP 470	Readings in U.S. Energy Policy	3
FREC 343/ECON 343	Environmental Economics	3
GEOG 250	Computer Methods in Geography (MATH 115 or MATH 117 required)	4
GEOL 421	Environmental and Applied Geology	3
GEOG 372	Geographic Information Systems	3
GEOG 412	Physical Climatology	

(Prerequisite: MATH 241 and GEOG 250)	4
GEOG 428/UAPP 428 Land Use & Environmental Planning	3
MATH 115 Pre-Calculus	3
MATH 117 Pre-Calculus for Scientists & Engineers	4
MATH 221 Calculus 1	3
MATH 241 Analytic Geometry and Calculus A	4
MATH 242 Analytic Geometry and Calculus B (MATH 241 Required)	4
MEEG 435 Wind Power Engineering	3
MEEG 442 Introduction to Fuel Cells	3
PHIL 340 Cross Cultural Environmental Ethics	3
POSC 350 Politics and the Environment	3
POSC 425/COMM 425 Energy/Environmental Policy, Public Opinion, Media and Politics	3
STAT 370 Introduction to Statistical Analysis I	3
STAT 371 Introduction to Statistical Analysis II	3
UAPP 325 Public Policy Analysis	3
UAPP 427 Evaluating Public Policy	3
Foreign Language (up to 8 credits)	8

All concentrations require the following courses:

#### Capstone Courses

GEOG 422 Resources, Development and the Environment	3
ENEP 424 Sustainable Energy Policy and Planning	3
ENEP 425 Energy: Resources, Technologies and Policies	3
CHEG 625 Green Engineering	3

#### Internship and Senior Research paper

ENEP 364 Internship Fieldwork (DLE)	3
Students intern in an organization in the field of energy and environmental policy.	
ENEP 472 Senior Research Paper	6
This is a tutorial course taken with approval from an Energy and Environmental Policy Program faculty member.	

#### Electives

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

TOTAL CREDITS NEEDED TO GRADUATE 125

## Materials Science And Engineering

Telephone: (302) 831-2062  
 E-mail: matsci@udel.edu  
<http://www.mseg.udel.edu/>  
 Faculty Listing: <http://www.mseg.udel.edu/directories/index.php>

Although the Materials Science and Engineering Department offers no degrees at the undergraduate level, undergraduate students study the basic concepts associated with the engineering properties of materials in undergraduate courses taught by the Materials Science and Engineering faculty. In addition, the department offers minors in Materials Science and Engineering, and Nanoscale Materials. All engineering departments offer senior projects concerned with the properties of materials. These technical elective courses are strongly recommended for students intending later to pursue Masters or Doctoral degrees in Materials Science and Engineering.

### MINOR IN MATERIALS SCIENCE AND ENGINEERING

The minor in Materials Science and Engineering requires completion of 15 credits with a minimum grade of C- in all courses. MSEG 302 is a required course. The remaining may be drawn from a wide variety of courses in Materials Science, Engineering, Physics, and Chemistry up to the 600-level. All courses used to fulfill the requirements of the minor must be approved by a Materials Science advisor. A listing of commonly offered courses is maintained by the Chair of the Materials Science and Engineering department. Other Materials courses may be approved as appropriate. For further information, contact Professor S. Ismat Shah at (302) 831-1618; Ismat@udel.edu.

### MINOR IN NANOSCALE MATERIALS

The Minor in Nanoscale Materials requires completion of 15 credits with a minimum grade of C-. MSEG 302 is a required course, and the remainder may be drawn from a wide variety of courses in nanoscience and engineering with the consent of the MSEG Nanoscale Materials minor coordinator. Courses from 300-level to the 600-level qualify. A course may be used only once between the Nanoscale Materials minor and the Materials Science minor. Commonly offered courses that are acceptable for the Minor in Nanoscale Materials are listed below. This

list is not exhaustive, and other courses may be approved as appropriate after discussion. A maximum of 3 credits of undergraduate research or independent study may be counted. For further information, contact Professor Ismat Shah at 302-831-1618; [Ismat@udel.edu](mailto:Ismat@udel.edu).

MSEG 441/MSEG 641 Nanomaterials and Thin Film Processes  
MSEG 442/MSEG 642 Semiconductors for Micro- and Nano- Technology  
MSEG 446 Senior Research (Approval by the minor coordinator required.)  
MSEG 608 Structure and Properties of Materials I  
MSEG 609 Structure and Properties of Materials II  
MSEG 624 Practical Electron Microscopy  
CHEG 616/MSEG 616 Physics and Chemistry of Surfaces and Interfaces  
CHEG 617 Colloid Science and Engineering  
CHEM 671 Quantum Chemistry  
ELEG 421/ELEG 621 Solid State Nanotechnology  
ELEG 422/ELEG 622 Electronic Materials Processing  
ELEG 442/ELEG 642 Biomedical Nanotechnology  
ELEG 449/ELEG 649 Nanotechnology & Applications

Additional appropriate courses may be approved by the faculty.

#### **MSEG 4+1 BACHELOR OF SCIENCE/MASTER OF MATERIALS SCIENCE AND ENGINEERING**

Telephone: (302) 831-2062  
<http://www.mseg.udel.edu/>  
Faculty Listing: <http://www.mseg.udel.edu/directories/index.php>

The Materials Science and Engineering (MSEG) department offers a special 4+1 BS/MMSE program for highly-qualified undergraduate students from the University of Delaware. This program allows the student to earn a bachelor's degree from one of several partnering departments (including Chemical Engineering, Mechanical Engineering, Electrical and Computer Engineering, and Civil and Environmental Engineering in the College of Engineering, and Biology, Chemistry, and Physics in the College of Arts and Sciences) and the Master's of Materials Science and Engineering (MMSE) degree in 5 years of full-time study at the University of Delaware. Students would normally apply in

the spring of their junior year. For admission to this program the following minimum criteria will be applied: 1. An undergraduate grade point average of at least 3.2 on a 4.0 scale at the end of their junior year. 2. A minimum of two letters of support from professors at the University of Delaware.

#### **Mechanical Engineering**

Telephone: (302) 831-2421  
E-mail: [info@me.udel.edu](mailto:info@me.udel.edu)  
<http://www.me.udel.edu>  
Faculty Listing: <http://www.me.udel.edu/People/people.html>

The Department of Mechanical Engineering offers an ABET-accredited program leading to the Bachelor of Mechanical Engineering, including a University of Delaware Honors Degree Option. Mechanical engineers receive one of the broadest educations of any of the modern engineering disciplines and consequently are well prepared to apply basic engineering principles to a wide variety of society's needs.

In order to prepare the mechanical engineers of the future to take their places in this profession and to be fully consistent with the published University and College Mission Statements, the UD Department of Mechanical Engineering's mission is to cultivate both learning and the advancement of knowledge in the engineering sciences by providing all of our students with outstanding undergraduate education programs so that they will know how to reason critically and independently yet cooperate productively.

Thus, the objective of the undergraduate Mechanical Engineering Program at the University of Delaware is to produce graduates with a strong foundation in engineering fundamentals enabling them to lead a successful career in industry or government and/or obtain an advanced degree, and contribute to engineering knowledge, the profession, and the community.

The educational program is structured around a basic core program that will enable the Bachelor of Mechanical Engineering graduate to follow many career paths, including research, development, design, production, maintenance, management, patent law, or education. The curriculum also allows a student to select engineering fields of particular interest for

study, such as aerospace, materials, biomedical, controls, design, systems, robotics, energy, and fluids.

The degree program is designed to serve not only those students who go into industry or government directly after the B.M.E. degree, but also those who go on to a graduate program in engineering or continue their education in other professions such as medicine, law or business administration. Undergraduates are encouraged to participate in research projects with faculty and graduate students which may involve the use of state-of-the-art instrumentation, electronics and networked computers.

### TECHNICAL ELECTIVES

Technical electives in the Bachelor of Mechanical Engineering curriculum provide the student with an opportunity to pursue areas of particular interest. Because of the breadth of technical areas in which mechanical engineers work, at least 3 of these credits must be in a basic science. The remaining technical elective credits demonstrate technical depth and are typically courses at or above the 400 level which are taken after much of the basic engineering science has been mastered and comprise a minimum of 12 credits. Although the majority of the technical depth electives are typically drawn from the Mechanical Engineering department, courses from other departments and colleges can be selected with the approval of the departmental advisor.

Students can choose towards the end of sophomore or early junior year to pursue a concentration in Aerospace Engineering to focus their upperclass studies. For those pursuing the degree without a concentration, other suggested focus areas include: materials and composites, fluids and thermal engineering, energy engineering (including fuel cell technologies), robotics and controls, manufacturing, and design. Students with an interest in bioengineering are encouraged to consider the Minor in Biomedical Engineering that is offered by the Mechanical Engineering Department as a focus for their technical electives. However, the technical elective program can also be structured to meet individual interests and students are encouraged to discuss their educational objectives with their advisor early in the junior year and to develop an agreed upon selection of technical electives.

## BACHELOR OF MECHANICAL ENGINEERING

### CURRICULUM CREDITS

Superior figures indicate year (1 = freshman, 2 = sophomore, 3 = junior, 4 = senior) and semester (F = fall, S = spring) in which the course should be taken.

### UNIVERSITY REQUIREMENTS

ENGL 110	Critical Reading and Writing (minimum grade C-)	31F
First Year Experience (FYE)		0-4
Breadth Requirements		12
Discovery Learning Experience (DLE)		3
Multi-cultural Course(s)		3

### MAJOR REQUIREMENTS

Breadth Requirements 21  
The College of Engineering requires 21 total credits, which includes 9 additional credits above and beyond the 12 University Breadth Requirement credits. Coursework may include courses from the University Breadth Requirement list and the College of Engineering Supplemental Course list. See College of Engineering Breadth Requirements for a detailed description. For timely progress toward degree completion, 3 credits must satisfy the University Multicultural Requirement. All courses must be passed with a minimum grade of C-.

CHEM 103	General Chemistry	41F
CISC 106	General Computer Science for Engineers	31F
EGGG 101	Introduction to Engineering (FYE)	21F
MATH 241	Analytic Geometry and Calculus A	41F
MATH 242	Analytic Geometry and Calculus B	41S
MATH 243	Analytic Geometry and Calculus C	42F
MATH 351	Engineering Mathematics I	32F
MATH 352	Engineering Mathematics II	32S
MATH 353	Engineering Mathematics III	32S
MEEG 112	Statics (minimum grade of C- required to progress)	31S
MEEG 202	Computer-Aided Engineering Design	32S
MEEG 211	Dynamics	32F
MEEG 215	Mechanics of Solids	42F
MEEG 301	Machine Design - Kinematics and Kinetics	33F
MEEG 304	Machine Design - Elements	33S
MEEG 311	Vibration and Control	43F
MEEG 321	Materials Engineering	33F

MEEG 331	Fluid Mechanics I	43F
MEEG 332	Fluid Mechanics II	33S
MEEG 341	Thermodynamics	33F
MEEG 342	Heat Transfer	33S
MEEG 346	Thermal Lab	13S
MEEG 401	Senior Design (DLE)	64F
MSEG 302	Materials Science for Engineers	32S
PHYS 207	Fundamentals of Physics I	41S
PHYS 245	Introduction to Electricity and Electronics	42S

TECHNICAL ELECTIVES 15

Courses in engineering, science or mathematics selected by the student with the approval of his/her advisor.

CREDITS TO TOTAL A MINIMUM OF 123

### **BACHELOR OF MECHANICAL ENGINEERING (AEROSPACE ENGINEERING)**

Students may add this Concentration to their Bachelor of Mechanical Engineering Major starting as early as the end of their sophomore year. To qualify for a Concentration in Aerospace Engineering, Mechanical Engineering students must complete all requirements for the Bachelor of Mechanical Engineering degree. In addition, the student is required to complete at least 12 credits in accordance with the following requirements. (Note that all of these courses may also be used to satisfy technical elective requirements for the BME degree.)

#### **CURRICULUM CREDITS**

##### **MAJOR REQUIREMENTS**

Required Course

All students must take the following course:

MEEG 432 Aerodynamics 3

Advanced courses in Aerospace Engineering

Three of the following three-credit courses must also be taken:\*

MEEG 411	Structural Mechanics for Mechanical and Aerospace Engineering	3
MEEG 414	Analysis of Aircraft Structure	3
MEEG 419	Mechanical Behavior of Materials and Structures	3
MEEG 423	Vibrations	3
MEEG 435	Wind Power Engineering	3
MEEG 616	Composite Materials Structures	3
MEEG 624	Control of Dynamic Systems	3
MEEG 636	Fluid Mechanics Measurements	3

MEEG 655	Principles of Composite Manufacturing	3
CIEG 401	Introduction to the Finite Element Method	3

\*Independent study, Senior Research and additional courses for satisfying this requirement can be approved by the Department.

### **HONORS BACHELOR OF MECHANICAL ENGINEERING**

A recipient of Honors Bachelor of Mechanical Engineering must satisfy the following:

1. All requirements for the Bachelor of Mechanical Engineering degree.
2. All generic University requirements for the Honors Degree. Graduate courses approved for this purpose by the department may be counted as Honors courses.

#### **MINOR IN BIOMEDICAL ENGINEERING**

This minor is offered through the Department of Mechanical Engineering. To enroll in this minor program, the student must have permission of the Chair of Mechanical Engineering, who will assign the student a minor advisor. To qualify for a Minor in Biomedical Engineering, students must complete at least 21 credits in accordance with the requirements specified below. Additional courses for satisfying these requirements may be approved by the Department. A minimum grade of C- must be achieved in each course qualifying for the minor. For inquiries regarding the Biomedical Engineering Minor, contact the Mechanical Engineering department at (302) 831-2421 or [info@me.udel.edu](mailto:info@me.udel.edu).

#### **CURRICULUM CREDITS**

##### **Course Requirements**

(1) All students must take the following three courses:

BISC 207	Introductory Biology I	4
or		
BISC 208	Introductory Biology II (by advanced placement or transfer credit only)	4
MATH 243	Analytic Geometry and Calculus C	4
PHYS 201	Introductory Physics I	4
or		
PHYS 207	Fundamentals of Physics I	4

(2) And one of the following courses:

BISC 306	General Physiology	3
BISC 401	Molecular Biology of the Cell	3
HESC 220	Anatomy and Physiology	3

(3) And two of the following courses (note: these courses may have prerequisites beyond those required for the minor)\*:

MEEG 482	Clinical Biomechanics	3
MEEG 483	Orthopaedic Biomechanics	3
MEEG 484	Biomaterial and Tissue Engineering	3
MEEG 485	Control of Human Movement	3
MEEG 486	Cell and Tissue Transport	3
MEEG 612	Biomechanics of Human Movement	3
ELEG 471	Introduction to Biomedical Engineering	3

\*Independent study, Senior Research and additional courses for satisfying this requirement can be approved by the minor advisor.

### **Sustainable Energy Technology**

Telephone: (302) 831-0590  
E-mail: goossen@ece.udel.edu

The College of Engineering offers an interdepartmental minor in Sustainable Energy Technology. This minor provides students with the basic knowledge and skills necessary to compare and select optimal technologies for energy production based on engineering, economic, and local and global criteria.

The minor is available to all majors, although the courses that have been selected require, in many cases, an elementary knowledge of thermodynamics or economic sciences. All courses in the minor are aimed at undergraduates. It has been traditional in the engineering departments, as well as many others, for undergraduates to take senior-year technical electives that are 600-level; therefore, 600-level courses are among the options that students may choose.

### **MINOR IN SUSTAINABLE ENERGY TECHNOLOGY**

A minor in Sustainable Energy Technology may be earned by a student in any University bachelor's degree program through successful completion of a minimum of 15 credits as described below. Before beginning these

courses, the student must meet the required course prerequisites. A minimum grade of C- is required in all courses completed for the minor.

To receive a Minor in Sustainable Energy Technology the student must take three (9 credits or more) out of the following set of courses:

CHEG 612	Applied Process Heat Transfer
CHEG 614	Special Topics in Energy
CHEG 616	Chemistry and Physics of Surfaces and Interfaces
CHEG 625	Green Engineering
CIEG 351	Transportation Engineering
EGTE 456	Fundamentals of Heating, Ventilation and Air Conditioning
ELEG 415/ELEG 615	Electric Power and Renewable Energy Systems
ELEG 429/ELEG 629	Low Power Electronics and Lighting
ELEG 437/ELEG 637	Energy Systems
ELEG 620	Solar Electric Systems
ELEG 628	Solar Electric Technology & Applications
MEEG 425	Automotive Powertrain Theory
MEEG 442	Introduction to Fuel Cells
MEEG 435	Wind Power Engineering Undergraduate Research in Energy (3 credits)

Students must also take the following required course (3 credits):

UAPP 625	Energy Policy and Administration
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AND take one course from the following list (3 or more credits):

CIEG 650	Urban Transportation Systems
GEOG 235	Conservation of Natural Resources
GEOG 236	Conservation: Global Issues
GEOG 617	Seminar in Climate Change
GEOG 622	Resources, Development and the Environment
MAST 628	Offshore Wind Power: Science, Engineering, and Policy
MAST 662	Conservation and Renewable Energy Policy
MAST 675	Economics of Natural Resources
MAST 676	Environmental Economics (prereq: ECON 300)
POSC 350	Politics and the Environment (permission required by POSC department)

Other courses may be included upon approval of the minor administration committee. For inquiries about the Sustainable Energy

Technology Minor, contact Professor Keith Goossen at (302) 831-0590 (goossen@ece.udel.edu).

### **Arts and Sciences - Engineering Double Degree**

Telephone: (302) 831-8659  
E-mail: fcsherm@udel.edu

The Arts and Sciences-Engineering program is a five-year curriculum which leads to a Bachelor of Arts from the College of Arts and Sciences and a Bachelor of Biomedical, Chemical, Civil, Computer, Electrical, Environmental, or Mechanical Engineering from the College of Engineering. Students who elect to complete this program must fulfill all the requirements of their four-year engineering major as well as a minimum of 30 additional credit hours in Arts and Sciences courses. Students must complete the college-level requirements of the College of Arts and Sciences and earn 15 credits of electives in an Arts and Sciences area of concentration. All elective courses are chosen in consultation with advisors in both Colleges so as to take every advantage of situations where a course can fulfill requirements of both the Engineering and Arts and Sciences degrees.

Students who wish to pursue the five-year Arts and Sciences-Engineering program must initially be admitted to a major within the College of Engineering. Engineering students who are interested in this special curriculum should meet with the Assistant Dean during their first year because it may not be possible to complete this curriculum in five years if the change is made after the freshman year. Once admitted to the five-year curriculum, a student may switch back to a normal four-year Engineering program or change to an Arts and Sciences major for which they are academically qualified.

**AREA OF CONCENTRATION.** The 15 credit hours which compose the Arts and Sciences area of concentration are chosen by the student in order to acquire some depth of knowledge in a particular field. In most cases, these 15 credits will not be sufficient to complete a major in an Arts and Sciences department. An Arts-Engineering student whose Arts and Sciences area of concentration falls short of the requirements for a specific major will graduate with a Bachelor of Arts from the College of Arts and Sciences. With careful planning, however, it is sometimes possible to obtain a second major

in Arts and Sciences by taking more than the minimum of 30 credit hours or by specializing in a scientific or mathematical field which has a number of course requirements in common with the engineering major.

### **BACHELOR OF ARTS - BACHELOR OF [BIOMEDICAL, CHEMICAL, CIVIL, COMPUTER, ELECTRICAL, ENVIRONMENTAL, OR MECHANICAL] ENGINEERING MAJOR: NONE REQUIRED - [BIOMEDICAL, CHEMICAL, CIVIL, COMPUTER, ELECTRICAL, ENVIRONMENTAL, OR MECHANICAL] ENGINEERING**

**CURRICULUM CREDITS**  
**UNIVERSITY REQUIREMENTS**  
ENGL 110 Critical Reading and Writing (minimum grade C-) 3  
First Year Experience (FYE) 0-4  
University Breadth Requirement 12  
Discovery Learning Experience (DLE) 3  
Multi-cultural Courses 3

**ARTS AND SCIENCES COLLEGE REQUIREMENTS**  
Writing: (minimum grade C-) 3  
A three-credit writing course involving significant writing experience including two papers with a combined minimum of 3,000 words to be submitted for extended faculty critique of both composition and content. These credits may also fulfill some of the breadth requirements. (See list of courses approved for Second Writing Requirement.)

Foreign Language: Completion of the intermediate 0-12 level course (107 or 112) in a given language. Students with four or more years of high school work in a single foreign language may attempt to fulfill the requirement in that language by taking an exemption examination.

Breadth: 27  
**COLLEGE OF ARTS AND SCIENCES BREADTH REQUIREMENTS:** (minimum grade C-)  
The College Breadth Requirements are in addition to the University Breadth Requirement. Up to 3 credits from each of the University Breadth Requirement categories may be used to simultaneously satisfy these College of Arts and Sciences Breadth Requirements.

Group A Creative Arts and Humanities 9 credits  
These courses provide students with an understanding and appreciation of the visual and

performing arts, of aesthetic forms, designs, or craftsmanship, or of literary, philosophical, and intellectual traditions. Courses may focus on a single aesthetic form or intellectual tradition, or cross-cultural comparisons. Nine credits of courses representing at least two departments or appropriate instructional units.

**Group B History and Cultural Change 9 credits**

These courses provide students with an understanding of the sources and forces of historical changes in ideas, beliefs, institutions, and cultures. Courses may address social, cultural, intellectual, economic, technological, artistic, scientific, and political development, changes in a discipline, or globalization and its effects.

Nine credits of courses representing at least two departments or appropriate instructional units.

**Group C Social and Behavioral Sciences 9 credits**

These courses provide students with an understanding of the behavior of individuals and social groups in the context of their human and natural environments. Courses emphasize the empirical findings, applications, and methods of the social and behavioral sciences. Nine credits of courses representing at least two departments or appropriate instructional units.

If all but one course in a group has been taken in one department or program, a course cross-listed with that program will not satisfy the distribution requirement.

## College of Health Sciences

### College of Health Sciences

The College of Health Sciences includes the Departments of Behavioral Health and Nutrition, Kinesiology and Applied Physiology, and Medical Technology, Physical Therapy, and the School of Nursing. Undergraduate major degree programs are offered in Applied Nutrition, Athletic Training, Dietetics, Exercise Science, Health and Physical Education, Health Behavior Science, Health Studies, Medical Technology, Nursing, and Nutritional Sciences.

Students in the college are encouraged to engage in undergraduate research projects, internships, study abroad, seminars, and the college's numerous student organizations. Students interested in such opportunities should consult with their faculty advisor. For more information, visit [www.udel.edu/health](http://www.udel.edu/health), or email [ud.chs@udel.edu](mailto:ud.chs@udel.edu).

#### Advisement and Academic Enrichment Opportunities

Students are assigned a faculty advisor in their major department who provide advice on course selection, degree requirements, career opportunities, and graduate study. Faculty advisors can also assist with setting up special opportunities such as internships and research experiences. It is recommended that students meet with their faculty advisors at least once each semester. The Office of the Assistant Dean for Student Services, 343 McDowell Hall also provides advisement to students who experience academic difficulties or who require additional guidance or information.

Students in most of the college's majors are eligible to participate in the University's Honors Program, undergraduate research, and Degree with Distinction. Honors Degrees are available to students in programs offered by the Departments of Behavioral Health and Nutrition, Kinesiology and Applied Physiology, and Medical Technology, and the School of Nursing.

#### Pass/Fail Courses

Courses taken pass/fail cannot be used to complete major requirements in the College of Health Sciences unless those courses only are offered on a pass/fail basis. Pass/fail courses only can be counted as free electives.

### Dean's Scholar Program

The Dean's Scholar Program exists to serve the needs of students whose clearly defined educational goals cannot be effectively achieved by pursuing the standard curricula for all existing majors, minors, and interdepartmental majors sponsored by the University. Driven by an overarching passion or curiosity that transcends typical disciplinary bounds and curricula, a Dean's Scholar's intellectual interests may lead to broad interdisciplinary explorations of an issue or to more intense, in-depth studies in a single field at a level akin to graduate work. In consultation with faculty advisors and the Associate or Assistant Dean of their college, Dean's Scholars design an imaginative and rigorous individual plan of study to meet the total credit hours required for graduation. Contact the Assistant/Associate Dean in the college or go to [www.udel.edu/deansscholar/](http://www.udel.edu/deansscholar/) for more information and the application.

### Behavioral Health and Nutrition

Telephone: (302) 831-2252  
<http://www.udel.edu/bhan>  
Faculty Listing: [http://www.udel.edu/bhan/fac\\_list.htm](http://www.udel.edu/bhan/fac_list.htm)

The Department of Behavioral Health and Nutrition offers undergraduate majors in Applied Nutrition, Dietetics, Health Behavior Science, Nutritional Sciences, and Health and Physical Education as well as minors in Public Health, Coaching Science, Nutrition, and Leisure Service Management. The programs integrate background coursework in the behavioral and nutritional sciences with internship and real-world practicum experiences. The undergraduate programs prepare students for a variety of careers in the areas of health care, education, recreation, public health, fitness, nutrition, and health promotion for business, industry, and public, private, and government agencies. Each student's academic advisor, a faculty member with expertise in the student's field of interest will assist in selecting courses and experiences that focus on the student's interests and professional goals. Careful selection of general education requirements and elective courses allows students to pursue a minor or an area of interest outside the college, a double major, or interdepartmental major. Students are encouraged to meet with their faculty advisor at least once each semester. Failure to meet

regularly with a faculty advisor can result in a delay in graduation if program requirements have not been met.

Students are encouraged to enrich their academic programs by participating in study abroad experiences, seminars, and student organizations. To enhance prospects for employment and obtaining internships, students are encouraged to seek experiences outside the classroom. For those planning to pursue a graduate program, research apprenticeships are available. Opportunities exist to participate as student members of national, regional, and statewide professional organizations related to each major.

#### Lifetime Activities Program

A varied activity program is available to all students on a pass/fail credit basis in HESC 120 courses. The objectives of the lifetime activities program are: (1) to provide knowledge and skills essential for leisure-time enjoyment, (2) to develop healthy exercise habits as well as a sound knowledge base in the scientific principles of physical activity, and (3) to provide an enjoyable atmosphere for learning skills that encourage lifetime participation. Regular attendance is required in order to receive credit in HESC 120 courses with a passing grade.

#### Honors Degrees In The Department Of Behavioral Health and Nutrition

Students can earn an Honors Bachelor of Science Degree by completing the following requirements:

1. All requirements for the Bachelor of Science Degree in the respective major.
2. All of the University's generic requirements for the Honors Baccalaureate Degree.

#### DEPARTMENTAL BREADTH REQUIREMENTS FOR MAJORS WITHIN THE DEPARTMENT OF BEHAVIORAL HEALTH AND NUTRITION GENERAL STUDIES REQUIREMENTS

##### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing 3 (minimum grade C-)  
First Year Experience (FYE) 0-4  
Breadth Requirements 12 credits  
Discovery Learning Experience (DLE) 3

#### Multi-cultural Courses 3

This course can be used in the Breadth Requirements, Major Requirements, or Electives.

#### DEPARTMENT BREADTH REQUIREMENTS HUMANITIES AND COMMUNICATION SKILLS\*

Students choose selected courses from the following departments: Art, Art History, Communication, Comparative Literature, English, Foreign Language (including: CHIN, FREN, GREK, GRMN, HEBR, ITAL, JAPN, LATN, PORT, RUSS, SPAN), Foreign Languages and Literatures, Jewish Studies, Linguistics, Museum Studies, Music, Philosophy, Theatre, and Women's Studies (WOMS 203, WOMS 205, WOMS 210, WOMS 216, WOMS 222, WOMS 318, WOMS 320, WOMS 326, WOMS 328, WOMS 330, WOMS 353, WOMS 380, WOMS 382, WOMS 389, WOMS 465, WOMS 480).

#### SOCIAL SCIENCES

Students choose selected courses from the following departments: Anthropology, Black American Studies, Business Administration, Criminal Justice, Economics (including FREC 150), History, Individual and Family Studies (HDFS 201, HDFS 221, HDFS 230, HDFS 329, HDFS 401, HDFS 403, HDFS 405), Political Science, Psychology (except PSYC209 and PSYC314), Sociology, and Women's Studies (WOMS 201, WOMS 202, WOMS 206, WOMS 207, WOMS 211, WOMS 212, WOMS 213, WOMS 233, WOMS 240, WOMS 291, WOMS 298, WOMS 299, WOMS 300, WOMS 305, WOMS 323, WOMS 333, WOMS 350, WOMS 363, WOMS 407, WOMS 413, WOMS 415, WOMS 430, WOMS 436, WOMS 460, WOMS 484, WOMS 498).

#### BIOLOGICAL AND NATURAL SCIENCES AND MATHEMATICS

Students choose selected courses from the following departments: Accounting, Animal and Food Science, Science, Biological Sciences, Chemistry, Computer and Information Science, Computer Engineering, Electrical Engineering, Engineering Technology, Entomology and Wildlife Ecology, Geography, Geological Sciences, Marine Studies, Materials Science, Mathematics, Mechanical Engineering, Medical Technology, Nutrition\*, Psychology (PSYC 209 and PSYC 314), Physics and Astronomy, Plant and Soil Sciences, Science, and Statistics.

\*NTDT courses do not count as a breadth requirement for majors in Applied Nutrition, Dietetics, and Nutritional Sciences.  
Health And Physical Education: Admission Requirements And Application Procedure

**HEALTH AND PHYSICAL EDUCATION:  
ADMISSION REQUIREMENTS AND APPLICATION  
PROCEDURE**

Incoming freshmen and transfer students interested in the Health and Physical Education teacher preparation program are admitted to "Health and Physical Education Interest." After the completion of the freshman year, students may apply for admission into the Health and Physical Education major. A faculty admission committee will make decisions on acceptance based on the following criteria:

Successful completion (minimum grade C-) of the following required Freshman year courses:

HDFS 201	3
HESC 145	3
HESC 155	3
HESC210	4
HESC220	3
Total Credits	16

ENGL 110	3
Math course	3
HESC 141	1
HESC 140	3
NTDT200	3
HESC 230	3
Total Credits	16

Minimum cumulative GPA of 2.5 and major GPA of 2.75.

Submission of a satisfactory Introductory Professional Portfolio that demonstrates a commitment to teaching (See Program Director for details).

Praxis I: Passing scores on the Praxis I test, all three subtests (reading, passing score = 175; writing, passing score = 173; and mathematics, passing score = 174) are required prior to admittance to the health and physical education major.

Completion of the appropriate application form for the major. Applications are accepted only at the end of the spring semester.

**REQUIREMENTS FOR PROGRESSION THROUGH THE PROGRAM**

Criteria For Admission to the Methods Block (HESC 414, HESC 415, and HESC 417)

- Minimum cumulative GPA of 2.50
- Minimum GPA of 2.75 in the major
- A grade of C- or better in all required courses within the major
- Completion of all required HESC courses (with the exception of HESC 425, HESC 433, HESC 431, HESC 465)
- Completion of all required EDUC courses (with the exception of EDUC 420 and EDUC 400)
- Submission of a satisfactory Working Portfolio (See Program Director for details)

**Criteria for Admission to Student Teaching in Health and Physical Education**

- Minimum cumulative GPA of 2.50
- Minimum GPA of 2.75 in the major
- A grade of C- or better in all required courses within the major.
- Completion of all required HESC courses (with the exception of HESC 425, HESC 433, HESC 431, HESC 465)
- Completion of all required EDUC courses (with the exception of EDUC 400)

Co-requisite for EDUC 400 - Student Teaching  
- Proof of having taken an appropriate academic CONTENT area test (e.g., Praxis II in English, Praxis II in Elementary Content Knowledge or Fundamental Subject Area Test). A copy of the official score report must be submitted to the Delaware Center for Teacher Education, 200 Academy Street, during enrollment in EDUC 400 Student Teaching no later than November 1 for January graduates and May 1 for June or summer graduates. An institutional recommendation for certification will not be issued until the candidate has presented the official score report.

**HEALTH AND PHYSICAL EDUCATION (BS)**

**CURRICULUM CREDITS**

**UNIVERSITY REQUIREMENTS**

ENGL 110	Critical Reading and Writing	3
	(minimum grade C-)	
First Year Experience (FYE)	0-4	
Breadth Requirement	12	
Discovery Learning Experience (DLE)	3	
Multi-cultural Courses	3	

**DEPARTMENT BREADTH REQUIREMENTS**

Humanities and Communication Skills*	6
*Must include courses from two different departments.	

Social Sciences  
HDFS 201 Lifespan Development 3

Natural and Biological Sciences and Mathematics 10  
Including:  
Mathematics  
Biology  
NTDT 200  
Note: The BISC (Biology) course must include a lab.  
Additional Breadth Requirements 3  
3 additional credits can be chosen from any area.

**MAJOR REQUIREMENTS**(minimum grade C- in each)

EDUC 400 Student Teaching 10  
EDUC 413 Adolescent Development and Educational Psychology 4  
EDUC 414 Teaching Exceptional Adolescents 3  
EDUC 419 Diversity in Secondary Education 3  
(fulfills University multicultural requirement)  
EDUC 420 Reading in the Content Area 1

Students must have a minimum cumulative GPA of 2.500, a GPA in the major of at least 2.750, and must apply to student teach at least one semester in advance.

HESC 121 Water Safety Instruction 2  
HESC 140 Fundamental Skills Analysis 3  
HESC 141 Adventure Challenge and Outdoor Recreation 1  
HESC 145 Introduction to Physical Education 3  
HESC 155 Personal Health Management 3  
HESC 210 Emergency Management of Injuries and Illnesses 3  
HESC 220 Anatomy and Physiology 3  
HESC 230 Group Facilitation Skills in Health and Physical Education 3  
HESC 231 Teaching Community and Mental Health 3  
HESC 241 Individual Sports 3  
HESC 245 Team Sports 3  
HESC 251 Skills, Techniques and Knowledge of Rhythms and Dance 1  
HESC 301 Motor Development 3  
HESC 315 Instructional Strategies for Drug Education 3  
HESC 319 Health-Related Fitness 3  
HESC 324 Measurement and Evaluation 3  
HESC 325 Instructional Strategies for Human Sexuality 3  
HESC 333 Health Theory and Program

Planning 3  
HESC 343 Adapted Physical Education 3  
HESC 345 Tactical Approach to Teaching Sports 3  
HESC 414 Methods and Materials in Health Education 3  
HESC 415 Practicum in Methods of Elementary Physical Education 3  
HESC 417 Practicum in Methods of Secondary Physical Education 3  
HESC 425 Biomechanics of Human Movement 4  
HESC 431 Physiology of Activity Lab 1  
HESC 433 Applied Physiology of Activity 3  
HESC 465 Teaching Seminar in Health/ Physical Education 3

CREDITS TO TOTAL A MINIMUM OF 120

**HEALTH BEHAVIOR SCIENCE (BS)**

**CURRICULUM CREDITS**

**UNIVERSITY REQUIREMENTS**

ENGL 110 Critical Reading and Writing 3  
(minimum grade C-)  
First Year Experience (FYE) 0-4  
Breadth Requirement 12  
Discovery Learning Experience (DLE) 3  
Multi-cultural Courses 3

**DEPARTMENT BREADTH REQUIREMENTS**

Humanities and Communication Skills 9  
Note: Must include courses from two different departments.

**Social Sciences**

Psychology 3  
Sociology 3

**Natural and Biological Sciences and**

Mathematics 12

Including:  
Mathematics  
Biology

**MAJOR REQUIREMENTS** (minimum grade C- in each)

HESC 155 Personal Health Management: Approach for a Lifetime 3  
HESC 160 Health Behavior Science Seminar 1  
HESC 220 Anatomy and Physiology 3  
HESC 311 Issues in Health Behavior Management 3  
HESC 326 Research Methods & Statistics for

HESC 332	Behavior Science	3
	Health Behavior Theory and Assessment	3
HESC 335	Health and Aging	3
HESC 342	Introduction to Adapted Physical Activity	3
HESC 422	Organization and Administration	3
HESC 435	Physical Activity Behavior	3
HESC 464	Internship	9
HESC 490	Development of Health Promotion Programs	3
NTDT 200	Nutritional Concepts	3
NTDT 310	Nutrition and Activity	3

Approved Minor (15 credits, minimum, required)

Suggested Minors:

- A: Strength and Conditioning
- B: Nutrition
- C: Psychology
- D: Business Administration
- E: Entrepreneurial Studies
- F: Coaching Science
- G: Leisure Services Management
- H: Disability Studies
- I: Public Health

ELECTIVES

After required courses are completed, sufficient credits must be taken to meet the minimum credits required for the degree.

CREDITS TO TOTAL A MINIMUM OF 120

**APPLIED NUTRITION (BS)**

CURRICULUM CREDITS

UNIVERSITY REQUIREMENTS

ENGL 110	Critical Reading and Writing	3
	(minimum grade C-)	
	First Year Experience (FYE) Breadth Requirement	0-4
	Discovery Learning Experience (DLE)	12
	Multi-cultural Courses	3

MAJOR REQUIREMENTS

	(minimum grade of C- required in BISC 106 or BISC 276, CHEM 214, and CHEM 216)	
	Humanities electives	6
CHEM 101/CHEM 102	General Chemistry	
	or	
CHEM 103/CHEM 104	General Chemistry	8
CHEM 213/CHEM 215	Elementary Organic Chemistry	4

CHEM 214/CHEM 216	Elementary Biochemistry with Lab	4
BISC 104	Principles of Biology	
	or	
BISC 207/BISC 208	Introductory Biology I and II	4-8
BISC 106	Elementary Human Physiology	
	or	
BISC 276	Human Physiology	3/4
	Students desiring to fulfill a Biology minor should take BISC 207, 208 and 276.	
ECON 100	Economic Issues and Policies	
	or	
ECON 151	Introduction to Microeconomics: Prices and Markets	3
PSYC 100	General Psychology	3
	Sociology course	3
BUAD 309	Management and Organizational Behavior	3
FOSC 305	Food Science (minimum grade of C-)	3
MATH 114	Elementary Mathematics and Statistics	3

or  
Successful performance on the Proficiency Test in Mathematics administered by Department of Mathematical Sciences.  
A minimum grade of C- must be achieved for credits to count toward the fulfillment of 28 credits in NTDT; a minimum grade of C- in 200-level courses must be achieved to proceed to upper-level courses; only 300-level courses and a maximum of four credits of Special Problems/Independent Study (NTDT x66) may count toward the fulfillment of this requirement.

NTDT 103	Introduction to Nutrition Professions	1
NTDT 200	Nutrition Concepts	3
NTDT 201	Food Concepts	3
NTDT 400	Macronutrients	3
NTDT 401	Micronutrients	3
NTDT 445	Teaching Methods: Nutrition and Food	3
	NTDT courses (300-level or higher)	9

One of the following NTDT Restricted Electives (minimum grade of C-) 3

NTDT 305	Nutrition in the LifeSpan	
NTDT 350	Nutrition and Older Adults	
NTDT 420	Maternal and Infant Nutrition	

ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credits required for the degree.

May include Military Science, Music, or HESC 120 lifetime activity courses.. (Only two credits of HESC 120, four credits of Music , and four credits of 100- and 200-level courses in Military Science/ Air Force may be counted toward the degree.)

CREDITS TO TOTAL A MINIMUM OF 120

## DIETETICS (BS)

### CURRICULUM CREDITS

#### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing 3  
(minimum grade C-)  
First Year Experience (FYE) 0-4  
Breadth Requirement 12  
Discovery Learning Experience (DLE) 3  
Multi-cultural Courses 3

#### MAJOR REQUIREMENTS

(minimum grade of C- required in BISC 276, CHEM 214, and CHEM 216)  
Humanities electives 6  
CHEM 101/CHEM 102 General Chemistry  
or  
CHEM 103/CHEM 104 General Chemistry 8  
CHEM 213/CHEM 215 Elementary Organic  
Chemistry 4  
CHEM 214/CHEM 216 Elementary Biochemistry  
with Lab 4  
BISC 207/BISC 208 Introductory Biology I  
and II 8  
BISC 276 Human Physiology 4  
BISC 300 Introduction to Microbiology 4  
ECON 100 Economic Issues and Policies  
or  
ECON 151 Introduction to Microeconomics:  
Prices and Markets 3  
PSYC 100 General Psychology 3  
SOC 201 Introduction to Sociology 3  
  
BUAD 309 Management and Organizational  
Behavior 3  
FOSC 305 Food Science (minimum grade  
C-) 3  
Statistics course selected from: STAT 200, PSYC  
209, FREC 408 3  
MATH 114 Elementary Mathematics and  
Statistics 3

or

Successful performance on the Proficiency Test in Mathematics administered by Department of Mathematical Sciences.

A minimum grade of C- must be achieved for credits to count toward the fulfillment of 47

credits in NTDT; a minimum grade of C- in 200-level courses must be achieved to proceed to upper-level courses; only 300-level courses and a maximum of four credits of Special Problems/Independent Study (NTDT x66) may count toward the fulfillment of this requirement.

NTDT 103 Introduction to Nutrition  
Professions 1  
NTDT 200 Nutrition Concepts 3  
NTDT 201 Food Concepts 3  
NTDT 250 Introduction to the Nutrition Care  
Process 3  
NTDT 321 Quantity Food Production and  
Service 3  
NTDT 322 Management of Food and  
Nutrition Services 3  
NTDT 326 Onsite Food Products 3  
NTDT 330 Nutritional Counseling 3  
NTDT 400 Macronutrients 3  
NTDT 401 Micronutrients 3  
NTDT 403 Dietetics Seminar 1  
NTDT 421 Nutrition Assessment  
Methods 3  
NTDT 445 Teaching Methods: Nutrition and  
Foods 3  
NTDT 450 Medical Nutrition Therapy I 3  
NTDT 451 Medical Nutrition Therapy II 3  
NTDT 460 Community Nutrition 3

One of the following NTDT Restricted Electives (minimum grade of C-) 3

NTDT 305 Nutrition in the LifeSpan  
NTDT 350 Nutrition and Older Adults  
NTDT 420 Maternal and Infant Nutrition

### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credits required for the degree.

May include Military Science, Music, or HESC 120 lifetime activity courses.. (Only two credits of HESC 120, four credits of Music , and four credits of 100- and 200-level courses in Military Science/ Air Force may be counted toward the degree.)

CREDITS TO TOTAL A MINIMUM OF 120

## NUTRITIONAL SCIENCES (BS)

### CURRICULUM CREDITS

#### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing 3  
(minimum grade C-)  
First Year Experience (FYE) 0-4

Breadth Requirement 12  
Discovery Learning Experience (DLE) 3  
Multi-cultural Courses 3

#### MAJOR REQUIREMENTS

(minimum grade of C- required in BISC 276, CHEM 214, and CHEM 216)

Humanities electives 6  
CHEM 103/CHEM 104 General Chemistry 8  
CHEM 214/CHEM 216 Elementary Biochemistry  
with Lab 4  
CHEM 220/CHEM 221 Quantitative Analysis I  
with Lab 4  
CHEM 321/CHEM 322 Organic Chemistry 8  
BISC 207/BISC 208 Introductory Biology I  
and II 8  
BISC 276 Human Physiology 4  
BISC 300 Introduction to Microbiology 4  
PHYS 201 Introductory Physics I 4  
ECON 100 Economic Issues and Policies  
or  
ECON 151 Introduction to Microeconomics:  
Prices and Markets 3  
Social Science electives 9  
FOSC 305 Food Science (minimum grade  
C-) 3  
FREC 408 Research Methods 3  
MATH 221/MATH 222 Calculus I and II  
or  
MATH 241/MATH 242 Analytic Geometry and  
Calculus A and B 3-4

A minimum grade of C- must be achieved for credits to count toward the fulfillment of 30 credits in NTD; a minimum grade of C- in 200-level courses must be achieved to proceed to upper-level courses; only 300-level courses and a maximum of four credits of Special Problems/Independent Study (NTDT x66) may count toward the fulfillment of this requirement.

NTDT 103 Introduction to Nutrition  
Professions 1  
NTDT 200 Nutrition Concepts 3  
NTDT 201 Food Concepts 3  
NTDT 400 Macronutrients 3  
NTDT 401 Micronutrients 3  
NTDT 421 Nutrition Assessment Methods 3  
NTDT courses (300-level or higher) 12

One of the following NTD Restricted Electives  
(minimum grade of C-) 3

NTDT 305 Nutrition in the LifeSpan  
NTDT 350 Nutrition and Older Adults  
NTDT 420 Maternal and Infant Nutrition

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credits required for the degree. May include Military Science, Music, or HESC 120 lifetime activity courses.. (Only two credits of HESC 120, four credits of Music , and four credits of 100- and 200-level courses in Military Science/ Air Force may be counted toward the degree.)

CREDITS TOTOTAL A MINIMUM OF 120

#### MINOR IN COACHING SCIENCE

This minor is designed to help students develop an understanding of the instructional, psychological, and management aspects of coaching, as well as a personal philosophy of coaching. Successful completion of the minor prepares students to take the American Sport Education Program (ASEP) Coaching Certification examination.

Students applying for the minor are expected to have had previous athletic experience and must have completed at least one semester of full time study with a minimum GPA of 2.25. The application process involves an interview with the faculty director of the minor. A grade of C- or better in required courses is needed for successful completion of the minor.

#### CURRICULUM CREDITS

HESC 210 Emergency Management of  
Injuries and Illnesses 3  
HESC 220 Anatomy and Physiology 3  
HESC 317 Strength and Conditioning  
Laboratory 1  
HESC 320 Principles of Strength and  
Conditioning 3  
HESC 390 Principles of Coaching 3  
HESC 440 Strategies for Athletic Peak  
Performance 3  
HESC 460 Coaching/Performance  
Practicum 3

#### MINOR IN LEISURE SERVICE MANAGEMENT

This minor is designed to provide students the knowledge and skills needed for management positions in public, private, commercial, and nonprofit leisure service agencies. Admission to the minor requires a minimum GPA of 2.0 based on at least 12 units of coursework. A grade of C- or better in all required courses is necessary for successful completion of the minor.

## CURRICULUM CREDITS

HESC 210	Emergency Mgmt of Injuries & Illnesses	3
HESC 261	Leadership in Leisure and Sport Management	3
HESC 263	Leadership Practicum	1-3
HESC 341	Principles of Outdoor Recreation	3
FREC 201	Records & Accounts	3
or		
ACCT 200	Survey of Accounting	4
LEAD 100	Leadership, Integrity and Change	3
or		
BUAD 100	Introduction to Business	3

## MINOR IN NUTRITION

A minor in nutrition requires NTDT 200, NTDT 400, NTDT 401 plus 6 credits in Nutrition and Dietetics at the 300-level or higher. A 2.0 GPA is required for admission; a minimum grade of C- is required in all courses in the minor. Note that CHEM 214 and CHEM 216 are necessary prerequisites for NTDT 400 and NTDT 401.

## MINOR IN PUBLIC HEALTH

Public Health is the science and art of preventing disease, prolonging life, and promoting health through the organized efforts and informed choices of society, organizations, public and private sectors, communities and individuals. The minor in Public Health provides an interdisciplinary opportunity to develop practical skills in program development and increase knowledge in the areas of social systems and policy as well as leadership. The minor is available to students of all disciplines and offers a greater appreciation for the application of public health concepts to your field of study. The minor requires 18 credit hours which are distributed as follows: Three required core courses (9 credits), and three elective courses (9credits). At least three of the nine elective credits must be chosen from outside your major. In addition to the 18 required credits, one three-credit statistics course must be taken as a co-requisite to achieve the minor. All courses included in the minor must be completed with a C- or better.

### Curriculum

#### Core Courses:

HLPR 211, Introduction to Public Health  
HLPR 222, Introduction to Epidemiology

HLPR 233, Introduction to Global Health

#### Elective Courses:

Select one from each of the following

Program Development: courses emphasize the study of planning, implementing, and evaluating public health programs in diverse settings

#### Social Systems and Policy:

courses emphasize the study of organizations, policies, laws, and regulations that represent the society and the community systems' response to the needs of its citizens

Leadership: courses emphasizes the study of innovation, motivation, and communication of decision-making

## Health Studies

Telephone: (302) 831-8371

This major provides a broad-based degree for students interested in a health-related career in any number of settings within the health services arena. Foundation courses from the sciences, humanities, and social sciences are combined with courses from departments in the College of Health Sciences. Students in the Health Studies major can select an existing University minor in order to meet individual personal and career objectives and interests.

## HEALTH STUDIES (BS)

### CURRICULUM CREDITS

#### UNIVERSITY REQUIREMENTS

ENGL 110	Critical Reading and Writing	3
(minimum grade C-)		
First Year Experience (FYE)		0-4
Breadth Requirements		12
Discovery Learning Experience (DLE)		3
Multi-cultural Courses		3

### BREADTH REQUIREMENTS

Creative Arts and Humanities 6

Includes all Arts and Science Group A courses as well as art courses and foreign language courses not used in the Communication/Foreign Language requirement Social Sciences (4 of the following 6 choices) 12

PSYC 100, ECON 100 or ECON 151, SOCI 201,

HDFS 201, BUAD 309,  
 Social Science/History Elective (as listed for Arts  
 & Science Group B or Group C  
 Sciences (must include a science course with  
 lab) 10

MAJOR REQUIREMENTS (minimum grade of C-  
 in each course)

Second Writing Course 3  
 An approved course taken after completion of  
 45 credit hours listed as "Section satisfies A & S  
 writing requirement"  
 Communication or Foreign Language Course 3  
 STAT 200 3  
 PHIL 241 Ethical Issues in Healthcare 3  
 or  
 HLTH 241 Ethical Aspects of Healthcare 3  
 BISC 276 Human Physiology 4  
 LEAD 404\* Leadership in Organizations 3  
 or  
 HESC 422 Organization and Administration  
 of Leisure Services 3  
 NURS 101 Anatomy 2  
 or  
 HESC 220 Anatomy and Physiology 3  
 HESC 155 Personal Health Management 3  
 NTDT 200 Nutrition Concepts 3  
 HESC 210 Safety, First Aid and Emergency  
 Care 3  
 NTDT 305 Nutrition in the Lifespan 3  
 HESC 326 Research Methods and Statistics  
 for Behavior Sciences 3  
 or  
 HESC 400 Research Methods 3  
 MEDT 200 The Language of Medicine 3  
 NURS 411/NURS 412 Topics 3  
 HESC 311 Issues in Health Behavior  
 Management 3

AND, ONE COURSE FROM THIS GROUP

NTDT 255 Multicultural Food Habits 3  
 NTDT 301 Cultural Perspectives on Food  
 and Nutrition 3  
 NTDT 310 Nutrition and Activity 3  
 NTDT 350 Nutrition and Older Adults 3

Additional HESC, MEDT, NTDT, or NURS (3  
 credits must be at the 400 level) 15

HLTH 495 Health Studies Practicum:  
 Capstone Course: 6

Approved Minor

ELECTIVES

After required courses are completed, sufficient

elective credit must be taken to meet the  
 minimum credits required for the degree.  
 \* LEAD 100 prerequisite required  
 CREDITS TOTOTAL A MINIMUM OF 120

## PRE-PROFESSIONAL TRACK IN OCCUPATIONAL THERAPY

This program is a cooperative agreement  
 between University of Delaware and Jefferson  
 College of Health Professions of Thomas  
 Jefferson University (TJU). Students can earn  
 both the Bachelor of Science (B.S.) and the  
 Master of Science (M.S.) degrees in five and a  
 half years. Students will spend the first three  
 years at University of Delaware and then proceed  
 to Jefferson College of Health Professions  
 for the final two and a half years of graduate  
 Occupational Therapy coursework. The B.S. in  
 Health Studies from University of Delaware  
 will be awarded after successful completion  
 of the first year at Jefferson College of Health  
 Professions. The M.S. in Occupational Therapy  
 degree from Thomas Jefferson University will be  
 awarded after successful completion of the final  
 year at Jefferson College of Health Professions.

## HEALTH STUDIES (BS/MS)

(UNIVERSITY OF DELAWARE)/OCCUPATIONAL  
 THERAPY (THOMAS JEFFERSON UNIVERSITY)

### REQUIREMENTS FOR ADMISSION

There are two paths for admission: students who  
 enter the program as freshmen, and current UD  
 students in other majors who enter the program  
 at the end of their freshman year.

### ADMISSION PROCESS FOR FRESHMEN APPLICANTS

1. Designate the BS/MS Occupational Therapy  
 option as your choice of major.
2. Your essay or personal statement should  
 discuss your interest in occupational therapy.
3. Candidates will be invited to come to campus  
 for a personal interview in late January or early  
 February.

### ADMISSION PROCESS FOR CURRENT UNIVERSITY OF DELAWARE STUDENTS:

1. Total earned credits hours (not including AP  
 credits) of 30 or less by the end of the first year  
 at UD (those with more than 30 credits may be  
 evaluated on an individual basis)
2. Cumulative grade point average of 3.3 or

higher

3. A grade of "C" or better in all prerequisite courses for the programs at TJU

4. Submit a Jefferson College of Health Professions application for admission with an endorsement/letter of recommendation from a designated University of Delaware representative.

#### ADMISSION DECISIONS

Admissions decisions are made by the University of Delaware-Jefferson Joint Admissions Committee. An average of five candidates will be selected for admission per year.

#### ARTICULATED CURRICULUM

1. Students in this program will follow a specific 3-year curricular track at University of Delaware that will include the prerequisite coursework needed to transfer into the Entry-level Master's in Occupational Therapy (EMOT) program at Jefferson.

2. Credits earned during the first year at Jefferson will be counted toward the completion of University of Delaware B.S. degree in Health Studies.

3. Students who have completed the articulated University of Delaware curriculum, have a cumulative grade point average of at least a 3.0, and have earned at least a "C" in all prerequisite coursework, may transfer into the EMOT portion of the program at Thomas Jefferson University.

#### HEALTH STUDIES OCCUPATIONAL THERAPY TRACK (BS)

##### CURRICULUM CREDITS

##### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing 3  
(minimum grade C-)  
First Year Experience (FYE) 0-4  
Breadth Requirement 12  
Discovery Learning Experience (DLE) 3  
Multi-cultural Courses 3

##### DEPARTMENT BREADTH REQUIREMENTS

Creative Arts and Humanities 6  
Includes all Arts and Sciences Group A courses as well as art courses and foreign language courses not used in the Communication/Foreign Language requirement

Social Sciences 12  
PSYC 100, PSYC 334, SOCI 201, HDFS 201

Sciences 19  
BISC 207, BISC 208, CHEM 103, CHEM 104, MATH 221

#### MAJOR REQUIREMENTS

(Minimum grade of C- in each course)

Second Writing Course 3  
An approved course taken after completion of 45 credit hours listed as "Section satisfies A & S writing requirement"  
Communication or Foreign Language Course 3-4  
Statistics Course at the 200 level or above 3  
BISC 276 Human Physiology 4  
PHIL241, PHIL202, or PHIL203 Ethics Course 3

HESC 220 Anatomy and Physiology 3  
HESC 155 Personal Health Management 3  
HESC 210 Safety, First Aid, and Emergency Care 3  
HESC 305 Fundamentals of Athletic Training 3  
HESC 350 Basic Concepts in Kinesiology 3  
HESC 400 Research Methods 3  
HESC 425 Biomechanics of Human Motion 4  
HESC 430 Physiology of Activity 3  
HESC 431 Physiology of Activity Laboratory 1  
NTDT 200 Nutrition Concepts 3  
NTDT 305 Nutrition in the Lifespan or  
NTDT 310 Nutrition and Activity 3

CREDITS TO TOTAL A MINIMUM OF 91-92

#### Kinesiology and Applied Physiology

Telephone: (302) 831-4909  
<http://www.udel.edu/kaap>  
Faculty Listing: [http://www.udel.edu/kaap/fac\\_list.htm](http://www.udel.edu/kaap/fac_list.htm)

The Department of Kinesiology and Applied Physiology offers undergraduate majors in Athletic Training and Exercise Science, both with Honors Degree options, as well as minors in Exercise Science and Strength and Conditioning. The programs integrate background coursework in the natural and physical sciences with the study of the major field. These undergraduate programs prepare students for clinical careers as athletic trainers, careers in exercise science, and post-graduate study in areas such as medicine, physical therapy, and research in kinesiology.

Each student's academic advisor, a faculty member with expertise in the student's field of interest, will assist in selecting courses and experiences that focus on the student's interests and professional goals. Careful selection of liberal arts requirements and elective courses allows students to pursue a minor or an area of interest outside of the college, a double degree, double major, or interdepartmental major. Students are encouraged to meet with their advisors at least once each semester. Failure to meet regularly with a faculty advisor can result in a delay in graduation if program requirements have not been met.

Students are encouraged to enrich their academic programs by participating in study abroad experiences, seminars, and student organizations. To enhance prospects for employment and obtaining internships, students are encouraged to seek experiences outside the classroom. For those planning to pursue a graduate program, research apprenticeships are available. Opportunities exist for students to participate as student members of national, regional, and statewide professional organizations related to each major.

There are several special academic opportunities for exceptionally talented and highly motivated students. Students may participate in the University's Honors Program, undergraduate research, and the Degree with Distinction program. The College's Dean's Scholar Program also provides qualified students with the opportunity to develop individualized programs of study.

## MAJOR DEGREE PROGRAMS

The Athletic Training major is accredited by the Commission on Accreditation of Athletic Training Education (CAATE). This major prepares students for taking the BOC exam for certification as an Athletic Trainer (ATC.)

Concentrations within the Exercise Science major allow students to further specialize in Biomechanics and Motor Control, Exercise Physiology, or as a Medical Scholar. Graduates of the program in Biomechanics are prepared to work in Gait Analysis laboratories or to go on for further graduate or professional study in Physical Therapy. The Exercise Physiology concentration is designed primarily for students interested in going on to graduate school, Physical Therapy School, or Medical School.

## Honors Degrees In The Department Of Kinesiology and Applied Physiology

Students can earn an Honors Bachelor of Science Degree by completing the following requirements:

1. All requirements for the Bachelor of Science Degree in the respective major.
2. All of the University's generic requirements for the Honors Baccalaureate Degree.

## Application Procedures

Entering freshmen and transfer students may be admitted directly into the major in Exercise Science. Freshmen seeking admission to the major in Athletic Training are admitted to an interest group associated with the major. Freshmen participating in an interest group are eligible to apply for admission to the major at the end of the freshman year.

Enrollment in major courses is restricted to majors. Non-majors are allowed to register for 100- and 200-level courses through the drop/add process if space is available. Non-majors are not normally permitted in 300- and 400-level courses.

## DEGREE REQUIREMENTS FOR MAJORS

### GENERAL STUDIES REQUIREMENTS

#### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing 3  
(minimum grade C-)  
First Year Experience (FYE) 0-4  
Breadth Requirement 12  
Discovery Learning Experience (DLE) 3  
Multi-cultural Courses 3  
This course can be used in the Breadth Requirements, Major Requirements, or Electives.

#### DEPARTMENT BREADTH REQUIREMENTS

##### HUMANITIES AND COMMUNICATION SKILLS

Students choose selected courses from the following departments: Art, Art History, Communication, Comparative Literature, English, Foreign Language (including: CHIN, FREN, GREK, GRMN, HEBR, ITAL, JAPN, LATN, PORT, RUSS, SPAN), Foreign Languages and Literatures, Jewish Studies, Linguistics, Museum Studies, Music, Philosophy, Theatre, and Women's Studies (WOMS 203, WOMS 205, WOMS 210, WOMS 216, WOMS 222, WOMS 318, WOMS 320, WOMS 326, WOMS 328, WOMS 330, WOMS 353, WOMS 380,

WOMS 382, WOMS 389, WOMS 480).

### SOCIAL SCIENCES

Students choose selected courses from the following departments: Anthropology, Black American Studies, Business Administration, Criminal Justice, Economics (including FREC 150), History, Individual and Family Studies (HDFS 201, HDFS 221, HDFS 230, HDFS 329, HDFS 401, HDFS 403, HDFS 405), Political Science, Psychology (except 209 and 314), Sociology, and Women's Studies (WOMS 201, WOMS 202, WOMS 206, WOMS 207, WOMS 211, WOMS 212, WOMS 213, WOMS 233, WOMS 240, WOMS 291, WOMS 298, WOMS 299, WOMS 300, WOMS 305, WOMS 323, WOMS 333, WOMS 350, WOMS 363, WOMS 407, WOMS 413, WOMS 415, WOMS 430, WOMS 436, WOMS 460, WOMS 484, WOMS 498).

### BIOLOGICAL AND NATURAL SCIENCES AND MATHEMATICS

Students choose selected courses from the following departments: Accounting, Animal Science, Biological Sciences, Chemistry, Computer and Information Science, Computer Engineering, Electrical Engineering, Engineering Technology, Entomology and Wildlife Ecology, Food Science, Geography, Geological Sciences, Marine Studies, Materials Science, Mathematics, Mechanical Engineering, Medical Technology, Nutrition, Psychology (PSYC 209 and PSYC 314), Physics and Astronomy, Plant and Soil Sciences, Science, and Statistics.

### Athletic Training: Admission Requirements and Application Procedure

### ATHLETIC TRAINING: ADMISSION REQUIREMENTS AND APPLICATION PROCEDURE

Incoming freshmen and transfer students interested in the athletic training major are admitted to "Athletic Training Interest" program. At the completion of the freshman year, students seeking admission into the athletic training major must have completed the following:

### Freshman Year - Athletic Training Curriculum:

General Studies (CHEM 103) 4  
\*HESC 155 3  
\*HESC 220 3  
General Studies (PSYC 100) 3  
Breadth 3

16

Breadth (ENGL 110 - Spring Only) 3  
Breadth (MATH course) (recommended; not required) 3  
Breadth (NTDT 200) (recommended; not required) 3  
\*HESC 210 3  
\*HESC 240(Spring only) 3  
15

\*These courses are used to calculate the Prerequisite Courses GPA.

### TECHNICAL STANDARDS FOR ADMISSION

The Athletic Training Education Program at the University of Delaware is a rigorous and intense program that places specific requirements and demands on the students enrolled in the program. An objective of this program is to prepare graduates to enter a variety of employment settings and to render care to a wide spectrum of individuals engaged in physical activity. The technical standards set forth by the Athletic Training Education Program establish the essential qualities considered necessary for students admitted to this program to achieve the knowledge, skills and competencies of an entry-level athletic trainer, as well as meet the expectations of the program's accrediting agency (Commission on Accreditation of Athletic Training Education Programs - "CAATE"). The following abilities and expectations must be met by all students admitted to the Athletic Training Education Program. In the event a student is unable to fulfill these technical standards, with or without reasonable accommodation, the student will not be admitted into the program.

Compliance with the program's technical standards does not guarantee a student's eligibility for the Board of Certification (BOC) examination.

Candidates for selection to the Athletic Training Education Program must demonstrate:

1. The mental capacity to assimilate, analyze, synthesize, integrate concepts and problem solve to formulate assessment and therapeutic judgments and to be able to distinguish deviations from the norm;

2. Sufficient postural and neuromuscular control, sensory function, and coordination to perform appropriate physical examinations using accepted techniques; and accurately, safely, and efficiently use equipment and materials during the assessment and treatment of patients;

3. The ability to communicate effectively and sensitively with patients and colleagues,

including individuals from different cultural and social backgrounds; this includes, but is not limited to, the ability to establish rapport with patients and communicate judgments and treatment information effectively. Students must be able to understand and speak the English language at a level consistent with competent professional practice;

4. The ability to record the physical examination results and a treatment plan clearly and accurately;

5. The capacity to maintain composure and continue to function well during periods of high stress;

6. The perseverance, diligence and commitment to complete the athletic training education program as outlined and sequenced;

7. Flexibility and the ability to adjust to changing situations and uncertainty in clinical situations;

8. Affective skills and appropriate demeanor and rapport that relate to professional education and quality patient care.

Candidates for selection to the Athletic Training Education Program will be required to verify that they understand and meet these technical standards or that they believe, with certain accommodations, they can meet the standards.

The Director of Affirmative Action and Multicultural Programs will evaluate a student who states he/she could meet the program's technical standards with accommodation and confirm that the stated condition qualifies as a disability under applicable laws.

If a student states he/she can meet the technical standards with accommodation, then the University will determine whether it agrees that the student can meet the technical standards with reasonable accommodation; this includes determination as to whether the accommodations requested are reasonable, taking into account whether accommodation would jeopardize clinician/patient safety, or the educational process of the student or the institution, including all coursework, clinical experiences and internships deemed essential to graduation.

In accordance with CAATE "Health and Safety" standard F1 that states:

"A physical examination by a MD/DO/NP/PA must verify that the student is able to meet the physical and mental requirements - with or without reasonable accommodation - of an

athletic trainer. This examination must include:  
F1.1 a medical history,  
F1.2 an immunization review, and  
F1.3 evidence of a physical examination that is maintained by the institution in accordance with established confidentiality statutes."

All athletic training students will be required to comply with the above standard. As a result, those students formally accepted into the ATEP following the ATI experience, will be required to have a physical examination performed by a UD physician or other appropriate recognized medical professional in accordance with the above provision. Documentation of the physical examination must be filed before beginning your first clinical rotation as part of the HESC257 - Athletic Training Practicum I class. The results of this examination will then be filed with your permanent medical records at the University of Delaware.

#### Criteria For Admission

Eight criteria are evaluated as part of the admission process in accepting students into the ATEP:

1. Overall GPA
2. Prerequisite Courses GPA
3. Directed Observation Hours
4. Letters of Recommendation
5. Interview
6. Essay
7. Clinical Evaluations
8. Clinical Competency Evaluation and Palpation Checklist

In evaluating the criteria, different ranking scales (1-5, 1-10, etc) are used. In each case the top student in each criteria would receive the lowest number awarded.

The eight criteria are evaluated in the following manner:

Overall GPA - The total number of candidates applying for admission to the program is divided by (10). For example, if twenty students apply, 20 is divided by 10 and the result is 2. In cases where a number falls between whole numbers (i.e. 2.6) the number would either be rounded up or down depending on where it fell on the scale. 2.5 would be rounded upward to 3, whereas 2.4 would be rounded downward to 2. We then rank the overall GPA of the students from high to low. The students would then be placed in groups of 2 with the top two students receiving a score of

(1). The next two highest GPAs would receive a score of (2). We continue scoring the students until everyone receives a score.

**Prerequisite Courses GPA** - A total of four classes (HESC155, HESC210, HESC220 and HESC240) are used to calculate the Prerequisite Courses GPA. The candidates' GPAs are ranked from high to low. The student with the highest GPA receives a score of (1); this number is then multiplied by two ( $1 \times 2 = 2$ ) for a total score of two. We continue scoring the students until everyone receives a score. We weight this criterion more heavily than others because we believe the Prerequisite Courses GPA is a very good predictor for success in our program.

**Directed Observation Hours** - Student are assigned by the Coordinator of the "Athletic Training Interest" program to a variety of clinical venues to gain valuable directed observation hours. Students who obtain between 50-99 directed observation hours receive a score of four (4). Students who obtain between 100-149 directed observation hours receive a score of three (3). Students who obtain between 150-199 directed observation hours receive a score of two (2). Students who obtain over 200 directed observation hours receive a score of one (1).

**Letters of Recommendation** - Students seeking admission into the ATEP will be asked to secure three letters of recommendation from individuals who can attest for their personality and clinical abilities. Letters of recommendation are evaluated using a ranking scale of (1-5). Each athletic training faculty member reads the three letters of recommendation and gives them a numerical score of between (1-5). A score of one would be considered excellent, while a score of five would be poor. All letters of recommendation are read independently. The scores from all the evaluators are added together and then divided by the total number of evaluators. The averaged score is then recorded on the admission ranking form.

**Interview** - Candidates seeking admission into the ATEP are given a formal interview conducted by the athletic training faculty, in May of each year. Each evaluator uses a standardized form, worth 100 points. At the end of the interview process the score for each candidate is totaled and then divided by the number of evaluators to get an overall interview score. The student with the best average interview score receives a score of (1), next highest is given a score of (2) and so

on until everyone has a score. This number is then multiplied by two (i.e.  $1 \times 2 = 2$ ,  $2 \times 2 = 4$ , etc...). We weight this criterion more heavily than others because we believe the Interview is a very good predictor for success in our program. **Essay** - The Essay criteria is scored using the same method as used for Letters of Recommendation.

**Clinical Evaluations** - Students are required to complete a series of four clinical rotations during the interest phase of the program. In doing so they are formally evaluated by the Approved Clinical Instructors ("ACI's") at each rotation. Clinical performance is critiqued on areas involving both "Skills/Abilities" and "Personal Attributes". A Likert scale (0-5) is used in this process. The overall evaluation score that combines both "Skills/Abilities" and "Personal Attributes" is averaged across all 4 rotations. Higher evaluation scores are best. The evaluation scores for each student would be rank ordered from highest to lowest. The Clinical Evaluations are scored using the same criteria used with Overall GPA.

**Clinical Competency Evaluation and Palpation Checklist** - Students are expected to complete the "Clinical Competency Evaluation Checklist" and the "Palpation Checklists" throughout the course of the academic year [September - May]. A percentage of the total number of possible "ACI check-offs" will be calculated to determine how many competencies were completed (e.g. -  $112/156 = 71.8\%$ ). The percentage scores for each student would be rank ordered from highest to lowest. The Clinical Competency Evaluation and Palpation Checklists are scored using the same criteria used with Overall GPA.

When all the criteria have been scored/ranked, the 8 scores are added together, to make a grand total score. The candidate with the lowest (BEST) grand total score is ranked as the first candidate who will be offered admission to the ATEP.

Acceptance into the ATEP is based upon the stated criteria and the number of available openings in the program. Meeting the minimum admission requirements does not guarantee acceptance into the program. Offers of admission into the ATEP are presented on a competitive basis to those individuals who are most qualified. Students may apply for admission to the ATEP at the end of the spring semester. Acceptance/rejection letters will be mailed to each candidate by July 1st.

Students interested in transferring from another institution or from another major at the University of Delaware must meet University of Delaware and College of Health Sciences transfer requirements and complete the same requirements as freshmen in the "Athletic Training Interest - ATI" program.

Students enrolled in the ATEP meet with the Program Director and Clinical Coordinator to plan the clinical education experience. Clinical education experiences are initiated in the first year and required in each succeeding semester of the student's program and designed to provide the student with sufficient opportunity to develop specific competencies and proficiencies pertaining to the health care of the athlete and those involved in physical activity. The clinical experience provides the student with an opportunity for integration of psychomotor, cognitive and affective skills within the context of direct patient care. The skills are identified within the psychomotor and clinical proficiencies aspects of each of the domains included in the document "NATA - Athletic Training Educational Competencies - 4th Edition." The development of psychomotor skills represents a significant focus of the student's clinical experience; ample opportunity is also provided for development and demonstration of competencies within the cognitive and the affective aspects of each domain identified in the above document.

A curricular requirement for all students in the ATEP is the satisfactory completion of six (6) Practicums. These Practicums (HESC 257, HESC 357, HESC 358, HESC 457, HESC 458, HESC 459) are offered in sequence over six full semesters and coincide with the athletic training students' clinical assignments. Requirements for each of these Practicum experiences include: (1) Clinical Hours, (2) Clinical Evaluations, (3) Completion of the Clinical Proficiencies, (4) Performance on the Clinical Proficiencies, and (5) Attendance at Required Meetings/Professional Functions, (6) Endorsement of Program Director and (7) Completion of Practicum Notebooks. The details of each of these requirements are clarified in the UNIFORM PRACTICUM GRADING GUIDELINES that are posted on the ATEP web site at - [http://www.udel.edu/HNES/AT/Site/clinical\\_education.html](http://www.udel.edu/HNES/AT/Site/clinical_education.html). Clinical assignments will include the University of Delaware athletic training room(s), athletic practices, and competitive events; community sports medicine clinics; physician offices, general medical clinics, high school venues in the greater Wilmington, DE area;

and athletic training research environments for a minimum of three academic years under the direct supervision of a variety of qualified allied health professionals (Approved Clinical Instructors - ACI and/or Clinical Instructors - CI). The student will be exposed to upper extremity, lower extremity, equipment intensive, and general medical experiences of both genders. Athletic training students are evaluated at the end of each clinical assignment.

Once students are admitted to the program, they are required to maintain the following minimum standards:

1. cumulative GPA of 2.0;
2. satisfactory completion of the required Practicum sequence;
3. meet the technical standards for admission.

Students who do not maintain the above minimum standards are placed on probation and are required to correct all deficiencies by the end of the next semester. Students who do not correct deficiencies are dropped from the curriculum.

#### BOARD OF CERTIFICATION (BOC) EXAM ELIGIBILITY

Candidates who are enrolled in their final semester/quarter prior to graduation are eligible to sit for the BOC exam. Qualified candidates for the BOC certification exam must meet the following requirements:

- A. Endorsement of the examination application by the CAATE recognized Program Director (PD) of the CAATE accredited education program.
- B. Proof of current certification in EMERGENCY CARDIAC CARE (ECC). (Note: ECC certification must be current at the time of initial application and any subsequent exam retake registration).

#### ATHLETIC TRAINING (BS)

##### CURRICULUM CREDITS

##### UNIVERSITY REQUIREMENTS

ENGL 110	Critical Reading and Writing	
(minimum grade C-)		3
First Year Experience (FYE)		0-4
Breadth Requirement		12
Discovery Learning Experience		3
Multi-cultural Course	Three credits in an approved course or courses stressing multi-cultural, ethnic, and/or gender-related course	

content. 3

#### DEPARTMENT BREADTH REQUIREMENTS

Humanities and Communication Skills\* 9  
Including: HLTH241 (3 credits; required ethics course)

\*Must include courses from at least two different departments.

Social Sciences 6  
Including: PSYC 100 (3 credits)

Natural/Biological Sciences and Mathematics  
MATH course at the 100-level or higher 3  
BISC 207 Introductory Biology I 4  
NTDT 200 Nutrition Concepts 3  
CHEM 103 General Chemistry 4

#### MAJOR REQUIREMENTS (minimum grade C- in each)

BISC 276 Human Physiology 4  
STAT 200 Basic Statistical Practice 3  
HESC 155 Personal Health Management 3  
HESC 210 Emergency Management of Injuries and Illnesses 3  
HESC 220 Anatomy and Physiology 3  
HESC 240 Introduction to Athletic Training 3  
HESC 257 Athletic Training Practicum I 3  
HESC 258 Advanced Taping and Bracing Methods 1  
HESC 317 Strength and Conditioning Laboratory 1  
HESC 320 Principles of Strength/Conditioning 3  
HESC 350 Basic Concepts in Kinesiology 3  
HESC 357 Athletic Training Practicum II 3  
HESC 358 Athletic Training Practicum III 3  
HESC 395 Sports Medicine Pharmacology 3  
HESC 400 Research Methods 3  
HESC 405 Rehabilitation of Athletic Injuries I 3  
HESC 406 Rehabilitation of Athletic Injuries II 3  
HESC 407 Prevention/Recognition/Athletic Injuries 3  
HESC 409 Therapeutic Modalities 4  
HESC 420 Functional Human Anatomy 5  
HESC 425 Biomechanics of Human Movement 4  
HESC 430 Physiology of Activity 3  
HESC 431 Physiology of Activity Lab 1  
HESC 448 Organization & Administration/Athletic Training 3  
HESC 449 Advanced Topics in Sports

Medicine 3

HESC 457 Athletic Training Practicum IV 3  
HESC 458 Athletic Training Practicum V 3  
HESC 459 Athletic Training Practicum VI 3  
HESC 480 Upper Extremity and Spine Evaluation 3  
HESC 481 Lower Extremity and Spine Evaluation 3  
HESC488 Upper Extremity and Spine Evaluation Laboratory 1  
HESC489 Lower Extremity and Spine Evaluation Laboratory 1

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credits required for the degree.

CREDITS TO TOTAL A MINIMUM OF 123

#### EXERCISE SCIENCE (BIOMECHANICS AND MOTOR CONTROL) (BS)

#### CURRICULUM CREDITS

#### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing 3  
(minimum grade C-)  
First Year Experience (FYE) 0-4  
Breadth Requirement 12  
Discovery Learning Experience (DLE) 3  
Multi-cultural Courses 3  
Three credits in an approved course or courses stressing multi-cultural, ethnic, and/or gender-related course content. 3

#### DEPARTMENT BREADTH REQUIREMENTS

Humanities and Communication Skills 9

#### Social Sciences

PSYC 100 General Psychology 3  
PSYC 325 Child Psychology  
or  
PSYC 334 Abnormal Psychology 3  
Natural/Biological Sciences and Mathematics  
CHEM 103 General Chemistry 4  
CHEM 104 General Chemistry 4  
MATH 241 Analytic Geometry and Calculus A 3  
NTDT 200 Nutrition Concepts 3  
BISC 207 Introductory Biology I 4  
BISC 208 Introductory Biology II 4

#### MAJOR REQUIREMENTS (minimum grade C- in each)

STAT 200 Basic Statistical Practice 3

HESC 180	Introduction to Exercise Science	3
HESC 205	Freshman Seminar in Exercise Science	1
HESC 309	Pre-Clinical Anatomy and Physiology I	4
HESC 310	Pre-Clinical Anatomy and Physiology II	4
HESC 353	Pre-Professional Seminar	1
HESC 375	Neuromechanical Basis of Human Movements	3
HESC 400	Research Methods	3
HESC 426	Biomechanics I	4
HESC 430	Physiology of Activity	3
HESC 431	Physiology of Activity Lab	1

**CONCENTRATION REQUIREMENTS (minimum grade C- in each)**

CISC 105	General Computer Science	3
HESC 427	Biomechanics II	3
MATH 242	Analytic Geometry and Calculus B	4
MATH 341	Differential Equations with Linear Algebra I	
or		
MATH 349	Elementary Linear Algebra	3
MEEG 112	Statics	3
MEEG 211	Dynamics	3
PHYS 207	Fundamentals of Physics I	4
PHYS 208	Fundamentals of Physics II	4
HESC 428	Motor Control and Learning	3
HESC 429	Motor Control and Learning Laboratory	1

**ELECTIVES**

After required courses are completed, sufficient elective credits must be taken to meet the minimum credits required for the degree.

**CREDITS TO TOTAL A MINIMUM OF 120**

**EXERCISE SCIENCE (EXERCISE PHYSIOLOGY) (BS)**

**CURRICULUM CREDITS**

**UNIVERSITY REQUIREMENTS**

ENGL 110	Critical Reading and Writing	3
(minimum grade C-)		
First Year Experience (FYE)		0-4
Breadth Requirement		12
Discovery Learning Experience (DLE)		3
Multi-cultural Courses		3

**DEPARTMENT BREADTH REQUIREMENTS**

Humanities and Communication Skills	9
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**Social Sciences**

PSYC 100	General Psychology	3
PSYC 325	Child Psychology	
or		
PSYC 334	Abnormal Psychology	3
Natural/Biological Sciences and Mathematics		
CHEM 103	General Chemistry	4
CHEM 104	General Chemistry	4
MATH 115	Pre-Calculus and MATH 221	
Calculus I		
or		
MATH 241	Analytic Geometry and Calculus A	4-6
NTDT 200	Nutrition Concepts	3
BISC 207	Introductory Biology I	4
BISC 208	Introductory Biology II	4

**MAJOR REQUIREMENTS (minimum grade C- in each)**

STAT 200	Basic Statistical Practice	3
HESC 180	Introduction to Exercise Science	3
HESC 205	Freshman Seminar in Exercise Science	1
HESC 309	Pre-Clinical Anatomy and Physiology I	4
HESC 310	Pre-Clinical Anatomy and Physiology II	4
HESC 353	Pre-Professional Seminar	1
HESC 375	Neuromechanical Basis of Human Movements	3
HESC 400	Research Methods	3
HESC 426	Biomechanics I	
HESC 430	Physiology of Activity	3
HESC 431	Physiology of Activity Lab	1

**CONCENTRATION REQUIREMENTS (minimum grade C- in each)**

HESC 305	Fundamentals of Athletic Training	3
HESC 434	ECG Interpretation	
or		
HESC 451	Clinical Exercise Physiology	3
PHYS 201	Introductory Physics I	4
PHYS 202	Introductory Physics II	4

**ELECTIVES** After required courses are

completed, sufficient elective credits must be taken to meet the minimum credits required for the degree.

**CREDITS TO TOTAL A MINIMUM OF 120**

## EXERCISE SCIENCE - MEDICAL SCHOLAR (BS)

### CURRICULUM CREDITS

#### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing 3  
(minimum grade C-)  
First Year Experience (FYE) 0-4  
Breadth Requirement 12  
Discovery Learning Experience (DLE) 3  
Multi-cultural Courses 3

#### DEPARTMENT BREADTH REQUIREMENTS

Humanities and Communication Skills 6  
Choose 6 credits from: PHIL 202, PHIL 203, PHIL 241, PHIL 246, PHIL 313, PHIL 389, PHIL 444, HDFS 330

#### Social Sciences

PSYC 100 3  
PSYC 325 3  
Additional 3-credit Social Science 3

#### Natural/Biological Sciences and Mathematics

BISC 207 Introductory Biology I 4  
BISC 208 Introductory Biology II 4  
CHEM 103 General Chemistry 4  
CHEM 104 General Chemistry 4  
MATH 241 Analytic Geometry and Calculus A 4  
NTDT 200 Nutrition Concepts 3

#### MAJOR REQUIREMENTS (minimum grade C- in each)

STAT200 Basic Statistical Practice 3  
HESC180 Introduction to Exercise Science 3  
HESC 205 Freshman Seminar in Exercise Science  
HESC309 Pre-Clinical Anatomy & Physiology I 4  
HESC 310 Pre-Clinical Anatomy & Physiology II 4  
HESC 353 Pre-Professional Seminar 1  
HESC 375 Neuromechanical Basis of Human Movement 3  
HESC 400 Research Methods 3  
HESC 426 Biomechanics I 4  
HESC 430 Physiology of Activity 3  
HESC 431 Physiology of Activity Laboratory 1

#### CONCENTRATION REQUIREMENTS (minimum grade C- in each)

Social Science 3  
(Choose one of the following courses: HIST 382,

HDFS 201, HDFS 221, HDFS 270, HDFS 329, HDFS 401, HDFS 339/HDFS 403, PSYC 420, POSC/SOCI 343, POSC 653, SOCI 311, WOMS 233, WOMS 389)

Second Writing Course 3

BISC 401 Molecular Biology of the Cell 3  
or  
CHEM 527 Introductory Biochemistry 3  
BISC 403 Genetic and Evolutionary Biology 3  
BISC408 Mammalian Histology 4  
or  
HESC420 Functional Anatomy 5  
CHEM 321 Organic Chemistry 4  
CHEM 322 Organic Chemistry 4  
PHYS 201 Introductory Physics I 4  
PHYS 202 Introductory Physics II 4

#### Two of the following three:

ARSC 480 Issues in Healthcare for Children and Families 3  
ARSC 482 Issues in Public Health – Economics 3  
SOCI 410 Health Services Practicum and Seminar 3

#### ELECTIVES

After required courses are completed, sufficient credits must be taken to meet the minimum credits required for the degree.

CREDITS TO TOTAL A MINIMUM OF 120

NOTE: This curriculum meets the Medical Scholars curricular requirements with a specialization in Bioethics. Completion of a Senior Thesis UNIV 401, UNIV 402 also meets the requirements for the Medical Scholars specialization in Translational Research.

#### MINOR IN EXERCISE SCIENCE

This minor is designed for students in majors other than exercise science who are planning careers in the health sciences and clinical fields and who wish to acquire knowledge regarding the mechanical, neurological, and physiological aspects of exercise. Students applying for the minor must have completed at least one semester of full-time study with a minimum GPA of 2.0. A grade of C- or better in required courses is needed for successful completion of the minor.

## CURRICULUM CREDITS

### Required Courses:

HESC 309	Pre-Clinical Anatomy and Physiology I	4
HESC 310	Pre-Clinical Anatomy and Physiology	4
HESC 375	Neuromechanical Basis of Human Motion	3
HESC 426	Biomechanics I	4
HESC 428	Motor Control and Learning	3
HESC 429	Motor Control and Learning Laboratory	1
HESC 430	Physiology of Activity	3
HESC 431	Physiology of Activity Laboratory	1
Total Credits		23

### Prerequisite Courses:

PREREQ for HESC 310: HESC 309  
PREREQ for HESC 426: PHYS 201 or PHYS 207, and HESC 310; COREQ: HESC 375  
PREREQ for HESC 428: HESC 310 and HESC 375; COREQ HESC 429  
PREREQ for HESC 430: HESC 310 or HESC 220; COREQ HESC 431

## MINOR IN STRENGTH AND CONDITIONING

This minor is designed to provide students with in depth understanding of the theory and practical considerations associated with physical training to enhance strength and conditioning. Students successfully completing the minor will be prepared to take the Strength and Conditioning Specialist Certification examination offered by the National Strength and Conditioning Association.

Students applying for the minor must have completed at least one semester of full time study with a minimum GPA of 2.25. Enrollment in the minor for at least four semesters is necessary due to sequencing of courses. A grade of C- or better in required courses is needed for successful completion of the minor.

## CURRICULUM CREDITS

### Prerequisite Courses:

The following courses are identified as prerequisites for selected courses in the minor. It is not necessary to take all of the prerequisite courses prior to enrolling in the first course in the minor. See course descriptions for the required courses to identify individual course

prerequisites.

HESC 220	Anatomy and Physiology	3
Or		
HESC 309	Pre-Clinical Anatomy and Physiology I	4
HESC 350	Basic Concepts in Kinesiology	3
HESC 425	Biomechanics of Human Movement	4
or		
HESC 426	Biomechanics I	4
NTDT 200	Nutrition Concepts	3
Required courses:		
HESC 317	Strength & Conditioning Laboratory	1
HESC 320	Principles of Strength/Conditioning	3
HESC 430	Physiology of Activity	3
or		
HESC433	Applied Physiology of Activity	3
HESC 431	Physiology of Activity Laboratory	1
HESC 435	Physical Activity Behavior	3
HESC 440	Strategies for Athletic Peak Performance	3
HESC 447	Advanced Topics in Strength and Conditioning	3
HESC 462	Practicum in Strength and Conditioning	3
NTDT 310	Nutrition and Activity	3

## Medical Technology

Telephone: (302) 831-2849  
<http://www.udel.edu/medtech>  
Faculty Listing: [http://www.udel.edu/medtech/faculty\\_profiles.html](http://www.udel.edu/medtech/faculty_profiles.html)

The Department of Medical Technology offers a major in Medical Technology, as well as an Honors Degree and Honors courses. Medical Technology (Biomedical Sciences) is clinical laboratory science related to the prevention, diagnosis and therapy of disease. The Medical Technology major is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (5600 N. River Road, Suite 720, Rosemont, IL 60018; telephone 773-714-8880. The four-year B.S. degree curriculum offers an undergraduate professional education designed to prepare students for career entry positions in hospital clinical laboratories and industry as well as graduate study for medical technology,

physician assistant and related areas.

During the first two years at the University, students interested in medical technology should take courses in the basic sciences and liberal arts, including prerequisite courses in biology and chemistry. The professional and clinical courses in the third and fourth years include a final period of supervised clinical education in the Christiana Care Health Services and other affiliated institutions. One required Winter Session is included in the B.S. curriculum.

During the clinical rotation period (fall of junior year and winter and spring terms of the senior year), students should plan for the possibility of 1) added expense for transportation and uniforms and 2) added expense for living off-campus at the clinical site for at least a five-week rotation during the senior year when the commuting distance is excessive. Students are required to meet all immunization and titer requirements, criminal background checks, drug screenings, and proof of health insurance prior to clinical coursework. Additional requirements for clinical education may be required by the healthcare facility to which the student is assigned.

For exceptionally talented and highly motivated students, several special academic opportunities are available. Students may pursue the Honors Degree with Distinction, the Honors Degree, the Degree with Distinction, or undergraduate research through independent study.

Freshmen or transfer students may be admitted to the University with a declared interest in medical technology. Students will be evaluated for admission to the Medical Technology major after completion of the prerequisite courses. Priority will be given to full-time University sophomores.

Class size is limited to 30 medical technology majors, and any interested student should talk with the Department Chair as early as possible.

Eligibility for admission to the junior year of the Medical Technology major will be based on the following criteria:

1. Minimal GPA of 2.0 in first four semesters of coursework.
2. Minimal grade point index of 2.0 computed from specified courses in biological sciences and chemistry, including laboratories: BISC 207, BISC

208, BISC 276, BISC 300, and CHEM 103, CHEM 104, CHEM 213-CHEM215, and CHEM 214-CHEM 216.

3. Completion of at least 60 credits, including the courses listed above.

4. Within the pool of eligible students, admission to the major courses will be determined by academic achievement. All applicants will be evaluated by the Medical Technology Undergraduate Program Committee.

The following course sequence is recommended. These courses may be subject to change, so it is essential that students meet regularly with their faculty advisors. Courses taken pass/fail cannot be used to complete major requirements. Pass/fail courses are for free electives only. A minimal grade of C- is required in each MEDT course in the Medical Technology major. In order to meet degree requirements, medical technology majors must have a minimum cumulative GPA of 2.0 to progress in the medical technology sequence. A student who earns a grade lower than C- in a medical technology course must repeat the course and achieve a grade of at least C- before enrolling in any medical technology course which has the prior course as a prerequisite. Students are not permitted to repeat any medical technology course more than once. Further, students who earn a grade lower than C- in more than one medical technology course will not be permitted to continue in the major.

## **MEDICAL TECHNOLOGY (BS)**

### **CURRICULUM CREDITS**

#### **UNIVERSITY REQUIREMENTS**

ENGL 110 Critical Reading and Writing 3  
(minimum grade C-)  
First Year Experience (FYE) 0-4  
Breadth Requirements 12  
Discovery Learning Experience (DLE) 3  
Multi-cultural Courses 3

### **MAJOR REQUIREMENTS**

Writing: (minimum grade C-) 3

A second writing course involving significant writing experience including two papers with a combined minimum of 3,000 words to be submitted for extended faculty critique of both composition and content. This course must be taken after completion of 45 credit hours. (See list of courses approved for second writing requirement.)

One of the following 3-4

MATH 114 College Mathematics and Statistics  
(for students who do not intend to continue the study of mathematics)  
MATH 115 Pre-Calculus  
MATH 117 Pre-Calculus for Scientists and Engineers  
(for students who intend to continue the study of mathematics)  
MATH 221 Calculus I  
MATH 241 Analytic Geometry and Calculus A  
Successful performance on the college proficiency exam(0 credits awarded).

**BREADTH REQUIREMENTS**  
(follow College of Arts and Sciences standards)

Group A: Understanding and appreciation of the creative arts and humanities 6

Group B: The study of culture and institutions over time 6

Group C: Empirically based study of human beings and their environment 6  
Three credit Pathways Course may be substituted for one Breadth Requirement.

(minimum grade of C- required in all MEDT courses)

MEDT 100 Introduction to Medical Technology 1  
MEDT 250 Communication, Education, & Ethics in Healthcare 1  
MEDT 370 Phlebotomy Practicum 1  
MEDT 375 Statistics, Research, and Clinical Laboratory Principles 2  
MEDT 380 Clinical Immunology and Medical Virology 4  
MEDT 390 Introduction to Genetics and Molecular Diagnostics 3  
MEDT 391 Introduction to Molecular Diagnostics Laboratory 1  
MEDT 400 Urinalysis and Body Fluids 2  
MEDT 401 Clinical Physiological Chemistry I 3  
MEDT 411 Clinical Physiological Chemistry I Laboratory 2  
MEDT 404 Hematology I 2  
MEDT 414 Hematology I Laboratory 1  
MEDT 406 Medical Microbiology 3  
MEDT 416 Medical Microbiology Laboratory 2  
MEDT 403 Clinical Physiological Chemistry II 4  
MEDT 413 Clinical Physiological Chemistry II

Laboratory 2  
MEDT 418 Medical Technology Senior Seminar 0  
MEDT 405 Hematology II 2  
MEDT 415 Hematology II Laboratory 2  
MEDT 409 Immunohematology 1  
MEDT 419 Immunohematology Laboratory 1  
MEDT 420 Immunohematology II 1  
MEDT 421 Immunohematology II Laboratory 1  
MEDT 430 Diagnostic Bacteriology and Medical Mycology 2  
MEDT 431 Diagnostic Bacteriology and Medical Mycology Laboratory 2  
MEDT 461 Laboratory Practice and Leadership I 1  
MEDT 471 Laboratory Practice and Leadership II 1  
MEDT 472 Clinical Urinalysis Practicum 1  
MEDT 473 Clinical Chemistry Practicum 3  
MEDT 475 Clinical Hematology Practicum 3  
MEDT 477 Clinical Microbiology Practicum 3  
MEDT 479 Clinical Immunohematology Practicum 3

BISC 207/BISC 208 Introductory Biology I and II 8  
BISC 276 Human Physiology 4  
BISC 300 Introduction to Microbiology 4  
CHEM 103/CHEM 104 General Chemistry 8  
CHEM 213/CHEM215 Elementary Organic Chemistry with Lab  
and  
CHEM 214/CHEM 216 Elementary Biochemistry with Lab  
or  
CHEM 321/CHEM 322 Organic Chemistry 8

CREDITS TOTOTAL A MINIMUM OF 124

**HONORS - MEDICAL TECHNOLOGY (BS)**

The recipient must complete:

1. All requirements for the Bachelor of Science degree in Medical Technology.
2. All the University's generic requirements for the Honors Baccalaureate degree.

## MINOR in MEDICAL DIAGNOSTICS

A minor in Medical Diagnostics may be earned by a student in any University bachelor's degree program through successful completion of a minimum of 15 credits as described below. This degree provides students especially those preparing for admission to professional schools in medicine, dentistry, pharmacy and to graduate programs in related health fields with the basic knowledge to evaluate and interpret clinical laboratory data. Before beginning these courses, the student must meet the required course prerequisites. Additional courses for satisfying the requirements for the minor may be approved by the Department. A minimum of C- is required in all courses completed for the minor.

### CURRICULUM CREDITS

#### Required courses

BISC208 INTRODUCTORY BIOLOGY II 4  
MEDT 200 THE LANGUAGE OF MEDICINE 3

Students may select the additional credits from courses listed below

MEDT 220 FORENSIC SCIENCE 3  
MEDT 360 CLINICAL IMMUNOLOGY AND  
MEDICAL VIROLOGY 3  
MEDT 390 INTRODUCTION TO GENETICS AND  
MOLECULAR DIAGNOSTICS 3  
MEDT 401 CLINICAL PHYSIOLOGICAL  
CHEMISTRY I 3  
MEDT 403 CLINICAL PHYSIOLOGICAL  
CHEMISTRY II 4  
MEDT 404 HEMATOLOGY I 2  
MEDT 405 HEMATOLOGY II 2  
MEDT 406 MEDICAL MICROBIOLOGY 3  
MEDT 430 DIAGNOSTIC BACTERIOLOGY AND  
MEDICAL MYCOLOGY 2

## Nursing

Telephone: (302) 831-2193  
<http://www.udel.edu/nursing>  
Faculty Listing: <http://www.udel.edu/nursing/faculty/faculty.html>  
e-mail: [ud-nursing@udel.edu](mailto:ud-nursing@udel.edu)

The School of Nursing offers a traditional baccalaureate degree program in nursing and an accelerated degree program for those who already hold a baccalaureate degree in another field. There is also a baccalaureate degree program for registered nurses with associate

degrees or diplomas. Returning nurses may complete the majority of their course work at home or in the worksite in a distance-learning format.

The School of Nursing offers programs leading to a Master of Science in Nursing (MSN) degree, Post-Master's Certificates and Doctor of Philosophy in Nursing. In addition, the School offers concentrations in Family Nurse Practitioner, Adult Nurse Practitioner, Neonatal Nurse Practitioner, Health Services Administration, and Clinical Nurse Specialist.

### Policies

In order to meet degree requirements, nursing majors must have a minimum cumulative GPA of 2.0 to progress in the nursing sequence. A student who earns a grade lower than C- in a nursing course must repeat the course and achieve a grade of at least C- before enrolling in a more advanced nursing course.

Students are not permitted to repeat any nursing course more than once. Students who earn a grade lower than C- in more than one nursing course will not be permitted to continue in the program. Students should meet regularly with their advisor to ensure that all requirements are being met.

Students are required to meet all immunization, safety, criminal background checks, drug screenings, and CPR requirements prior to clinical coursework and direct patient care. Additional requirements for clinical education may be required by the healthcare agency to which a student is assigned. Students are expected to provide their own transportation to all required clinical experiences and are encouraged to carpool.

### Essential Functions

Individuals with disabilities are welcome in the field of nursing. However, the student must be able to perform certain essential functions throughout the program of learning. These physical, cognitive, psychomotor, affective and social abilities are necessary for the provision of safe and effective nursing care. Progression and graduation are contingent upon one's ability to demonstrate the essential functions delineated for the nursing programs. Affiliated clinical agencies may identify additional essential functions. The nursing program reserves the

right to amend the essential functions as deemed necessary.

Students who are otherwise qualified and have a documented disability that will require accommodation to perform these functions, must contact the Americans with Disabilities Act Office (ADA). It is the student's responsibility to register with the ADA office, provide documentation for the disability and request reasonable accommodation(s) that will enable them to continue as a student nurse. Of course, accommodations will be considered on a case-by-case basis, and the University of Delaware will determine if the suggestions are reasonable or if there are other possible accommodations. While the University of Delaware is committed to providing accommodations, those accommodations may not guarantee success in the clinical or employment setting. In addition, the School of Nursing is unlikely to conclude that a surrogate for a nursing student can be considered a reasonable accommodation to perform any of the essential functions listed in this policy.

The essential functions delineated below are necessary for nursing program progression and graduation and for the provision of safe and effective nursing care. The essential functions include but are not limited to:

1. Sufficient visual acuity, such as is needed in the accurate preparation and administration of medications, and for the observation necessary for client assessment and care.
2. Sufficient auditory perception to receive verbal communication from clients and members of the health team and to assess health needs of people through the use of devices such as stethoscopes and to hear alarms found in intravenous infusion pumps, cardiac monitors, fire alarms, etc.
3. Sufficient tactile ability to perform physical assessment of clients and carry out related therapeutic interventions, e.g. catheter insertion and injections.
4. Sufficient gross and fine motor coordination to respond promptly and to implement the skills required in meeting client health care needs safely. These include, but are not limited to, manipulation of equipment and performance of CPR.
5. Sufficient physical ability to walk or stand for extended periods of time, push/pull medical equipment, transfer clients to and from units, move quickly during emergency situations, move from room to room, and maneuver in small

spaces.

6. Sufficient speaking ability to communicate with clients and the health care team.
7. Sufficient psychological stability to consistently and dependably engage in the process of critical thinking in order to formulate and implement safe and ethical nursing decisions in a variety of health care settings.
8. Sufficient interpersonal skills to interact appropriately with patients, families, and other members of the health care team.

Essential Function Standard (Performed consistently and dependably) Examples of necessary activities (not all-inclusive)

Visual Visual ability sufficient for observation and assessment necessary in nursing care Observe patient responses, read medication labels, measure drainage\*

Hearing Auditory ability sufficient for monitoring and assessing health needs Hear monitor alarm, emergency signals, auscultatory sounds and cries for help\*

Tactile Tactile ability sufficient for physical assessment and intervention Perform palpation, functions of physical examination and/or those related to therapeutic intervention (such as insertion of a catheter)\*

Motor skills Gross and fine motor abilities sufficient for providing safe, effective nursing care in a timely manner Calibrate and use equipment; position patients appropriately.\*

Mobility Physical abilities sufficient for movement from room to room and in small spaces, as well as for lifting and transferring patients Move around in patient's room, work spaces and treatment areas; administer cardiopulmonary procedures\*

Communication Communication abilities sufficient for verbal and written interaction with others Explain treatment procedures, initiate health teaching, and document and interpret nursing actions and patient responses\*

Critical thinking Critical-thinking ability sufficient for clinical judgment in a timely manner Identify cause/effect relationships in clinical situations, develop and implement nursing care plans (includes measurement, calculation, reasoning, analysis and synthesis.)\*

Interpersonal Interpersonal abilities sufficient for interaction with individuals, families and groups from various social, emotional, cultural and intellectual backgrounds Establish rapport with patients and colleagues. Maintain appropriate affect levels. \*

\*If the student is otherwise qualified and has a documented disability that will require

accommodations to perform these functions, the student must contact the Americans with Disabilities Act Office (ADA) to discuss reasonable accommodations. It is the student's responsibility to register with the ADA office, provide documentation for the disability and request reasonable accommodations.

### Health Conditions

Individuals with certain health conditions (including, but not limited to HIV infection, Hepatitis B infection, immunosuppression, seizure disorder, etc.) may require accommodations in order to safely practice in some health care settings. Those students whose health condition may pose a risk to themselves or others (including in the clinical setting) have an obligation to report this condition to the University. Further, those students requiring accommodations must contact the University's Americans with Disabilities Act (ADA) Office to discuss reasonable accommodations. It is the student's responsibility to register with the ADA office, provide documentation for the disability and request reasonable accommodations.

### State Board Standards

Most State Boards of Nursing state that grounds for denial of a license to practice as a registered nurse include, but are not limited to, conviction of a felony or certain other criminal offenses, chemical dependency, mental incompetence, and other reasons authorized by law or regulations.

### Licensure

Graduates are eligible for registered nurse licensure in any state upon satisfactory completion of the National Council Licensure Examination for Registered Nurses (NCLEX-RN). If the examination is passed and licensure granted in one state, application may be made to other states for licensure by endorsement.

### Traditional Bachelor Of Science In Nursing Program

### Traditional Bachelor Of Science In Nursing Program

The traditional Bachelor of Science in Nursing program is designed to develop the knowledge, understanding and skills essential for the practice of professional nursing and to provide

the basis for graduate education. The program is fully accredited by the National League for Nursing Accrediting Commission and the Commission for Collegiate Nursing Education. The first year of the program includes foundation courses in the natural, social, and behavioral sciences, and liberal arts. Each subsequent year increases the nursing content and coursework and culminates in a senior year of clinical residency in direct care clinical agencies. Clinical resources of the School include healthcare agencies in Delaware, Maryland, Pennsylvania, and New Jersey.

During clinical rotations, students are exposed to many different experiences in a variety of healthcare settings. These include the major hospitals in New Castle County as well as regional community hospitals, a variety of extended care facilities, independent living facilities, and various community-based providers who offer a range of services across the life span. Students also learn in a state-of-the-art simulation laboratory. Students graduate as nurse generalists with experiences in pediatric, maternity, psychiatric, medical-surgical, and community health nursing.

Nursing students are encouraged to participate in the university chapter of the National Student Nurses' Association and the Minority Student Nurses' Organization. Students who have earned recognition for superior academic achievement may be invited for membership in Beta Xi Chapter of Sigma Theta Tau, the International Honor Society of Nursing. Qualified students may participate in the University's Honors, undergraduate research, and the Degree with Distinction programs. Research opportunities are available to all undergraduates.

### Accelerated Nursing Degree Program

The Accelerated Degree Program is a course of study leading to a Bachelor of Science in Nursing and is designed for individuals who have a previously earned degree in another field and would like to pursue a career in nursing. Students in this program must complete all of the non-nursing requirements by transfer credit from their first degree, completion of coursework at the University of Delaware or by transfer of pre-approved equivalent courses from other accredited institutions. The program begins in the fall with three courses. In January, students begin their full time studies with a five week winter session. Coursework continues

in the spring semester, followed by a nine week summer session, the fall semester, and concludes with the following January winter session. All pre-requisite science courses must be completed successfully prior to the first fall nursing course.

Students taking courses in an accelerated mode are sometimes out of sequence with on-campus course offerings. In these instances, lecture will be provided via CD-ROM or web, and augmented by group discussion sessions.

Eligibility for this course of study includes the following:

1. An earned baccalaureate degree.
2. GPA of 3.00 or greater
3. Completion of all non-nursing courses prior to winter session of the program.

For more information or to make an appointment to discuss the accelerated program, please contact the School at 302-831-1253. A sample curriculum plan may be viewed at the Accelerated Degree Program website ([www.udel.edu/nursing/accelerated.html](http://www.udel.edu/nursing/accelerated.html)). Students who may need financial assistance in pursuing a second degree should contact the Financial Aid Office at 302-831-1534. Reference books on private financial aid sources are available in libraries or local academic institutions in your community.

### **HONORS DEGREE IN THE DEPARTMENT OF NURSING**

Students can earn an Honors Bachelor of Science Degree in Nursing by completing the following requirements:

1. All requirements for the Bachelor of Science in Nursing Degree
2. All the University's generic requirements for the Honors Baccalaureate Degree

Courses at the 600 level or higher may be taken for honors credits (with permission from the course instructor and academic advisor).

### **BACHELOR OF SCIENCE IN NURSING - NURSING (Traditional Program)**

CURRICULUM CREDITS  
University Requirements

ENGL 110	Critical Reading and Writing	3
	(minimum grade C-)	
First Year Experience (FYE)		0-4
Discovery Learning Experience (DLE)		3
Breadth Requirements		12
Multi-cultural Courses		3

This course also can be used in the breadth requirements.

### **DEPARTMENT BREADTH REQUIREMENTS**

Group A: Understanding and appreciation of the creative arts and humanities 3  
(Foreign language course may be substituted for a Group A requirement)

Group B: The study of culture and institutions over time 3

Group C: Empirically based study of human beings and their environment 3

### **MAJOR REQUIREMENTS**

BISC 207	Introductory Biology	4
BISC 276	Human Physiology (minimum grade C-)	4
BISC 300	Introduction to Microbiology	4
CHEM 105	General Chemistry	4
CHEM 106	Elementary Bioorganic Chemistry	5
NTDT 200	Nutrition Concepts	3
STAT 200	Basic Statistical Practice	3
PSYC 100	General Psychology	3
HDFS 201	Life Span Development	3
NURS 100	New Student Connections	1
NURS 101	Basic Human Anatomy	2
NURS 110	Nursing Connections	1
NURS 200	Clinical Decision Making	2
NURS 222	Pharmacology	3
NURS 231	Health Promotion Across the Lifespan	2
NURS 232	Care of Vulnerable Populations	2
NURS 241	Scientific Basis of Nursing	3
NURS 242	Scientific Basis of Nursing	3
NURS 250	Health Assessment Across the Lifespan	2
NURS 352	Adult Health Nursing	3
NURS 354	Psychosocial Nursing	3
NURS 356	Care of Children and Families	3
NURS 358	Women's Health Nursing	3
NURS 362	Research Concepts in Health Care	3
NURS 372	Adult Health Nursing	3
NURS 382	Communities and Health Policy	2

NURS 390	Clinical Work Experiences	2
NURS 411/NURS 412/ NURS 413/NURS414	Topics in Health Care Delivery*	6- 9
NURS 453	Clinical Applications: Adult Health Nursing I	3
NURS 457	Clinical Applications: Maternal Child Nursing	3
NURS 459	Clinical Application: Psychosocial Nursing	3
NURS 460	Clinical Integration Seminar I	2
NURS 473	Clinical Applications: Adult Health Nursing II	3
NURS 477	Clinical Applications: Care of Populations	3
NURS 479	Clinical Preceptorship	3
NURS 480	Clinical Integration Seminar II	2

\*Each student is required to take a minimum of 6 credits and allowed a maximum of 9 credits of NURS 411/NURS 412/NURS 413/NURS414

#### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credits required for the degree.

CREDITS TO TOTAL A MINIMUM OF 122

Many nursing courses are offered once each academic year. Students must complete selected required lower division courses before enrolling in upper division nursing courses. Nursing courses must be taken in sequence unless otherwise specified.

#### **NURSING (BS) (Accelerated Degree Program)**

##### CURRICULUM CREDITS

##### UNIVERSITY REQUIREMENTS

ENGL 110	Critical Reading and Writing	3
	(minimum grade C-)	
First Year Experience (FYE)		0-4
Breadth Requirements		12
Discovery Learning Experience (DLE)		3
Multi-cultural Courses		3

This course also can be used in the breadth requirements.

##### DEPARTMENT BREADTH REQUIREMENTS

Group A: Understanding and appreciation of the creative arts and humanities 3  
(Foreign language course may be substituted for a Group A requirement)

Group B: The study of culture and institutions

over time 3

Group C: Empirically based study of human beings and their environment 3

#### SUPPORT COURSES

(To be completed through course work or transfer of credit before beginning the first Winter Session)

BISC 207	Introductory Biology I	4
NURS 101	Basic Human Anatomy	2
BISC 276	Human Physiology (minimum grade C-)	4
BISC 300	Introduction to Microbiology	4
CHEM 105	General Chemistry	4
CHEM 106	Elementary Bioorganic Chemistry	5
HDFS 201	Life Span Development	3
NTDT 200	Nutrition Concepts	3
PSYC 100	General Psychology	3
STAT 200	Basic Statistical Practice	3

#### Nursing Courses (66 credits)

NURS 220	Concepts of Nursing Practice	3
NURS 222	Pharmacology	3
NURS 230	Foundations of Nursing	2
NURS 250	Health Assessment Across the Lifespan	2
NURS 312	Pathophysiology	4
NURS 352	Adult Health Nursing	3
NURS 354	Psychosocial Nursing	3
NURS 356	Care of Children and Families	3
NURS 358	Women's Health Nursing	3
NURS 362	Research Concepts in Health Care	3
NURS 372	Adult Health Nursing	3
NURS 382	Communities and Health Policy	2
NURS 411/NURS 412/NURS413/NURS414	Topics in Health Care Delivery	3
NURS 411/NURS 412/NURS413/NURS414	Topics in Health Care Delivery*	3
NURS 453	Clinical Applications: Adult Health Nursing I	3
NURS 457	Clinical Applications: Maternal Child Nursing	3
NURS 459	Clinical Application: Psychosocial Nursing	3
NURS 460	Clinical Integration Seminar I	2
NURS 473	Clinical Applications: Adult Health Nursing II	3
NURS 477	Clinical Applications: Care of Populations	3
NURS 479	Clinical Preceptorship	3
NURS 480	Clinical Integration Seminar II	2

\*Each student is required to take 6 credits of NURS 411/NURS 412/NURS413/NURS414

## ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credits required for the degree.

## CREDITS TO TOTAL A MINIMUM OF 120

Many nursing courses are offered once each academic year. Students must complete selected required lower division courses before enrolling in upper division nursing courses. Nursing courses must be taken in sequence unless otherwise specified.

## Baccalaureate Program For The Registered Nurse

The School of Nursing offers a separate program to allow registered nurses to earn a Bachelor of Science in Nursing. The Baccalaureate for the Registered Nurse major is an innovative program designed to build on basic nursing knowledge, enhancing nursing practice in an increasingly complex society. This major is offered in a distance learning format to maximize educational opportunities for registered nurses. Licensed registered nurses who are graduates of associate degree or diploma programs may apply for admission to this program. For the RN to MSN program, please see graduate nursing programs.

### Admission Requirements

A registered nurse who is a graduate of an associate degree or diploma nursing program may apply for admission to the Baccalaureate for the Registered Nurse Major. The applicant should request a distance learning application form or access the application online at <http://www.udel.edu/nursingapplication> and submit the form with fee to the School of Nursing.

### Materials requested are:

- Completed application form with application fee
- Official transcripts verifying college credits previously earned including verification of graduation. A student who is transferring credit from other institutions must have a 2.5 GPA in all previous college work. The University accepts credits only from those institutions that are fully accredited by the appropriate regional accrediting association. This determination is made only at the time of formal application to the University.

- Current registered nurse license for those licensed in the United States

- Documentation of equivalent to a US RN license for international students plus a minimum score of 600 for the paper test and 250 for the computer based test required for the Test of English as a Foreign Language (TOEFL)

### Criteria for Enrollment in Baccalaureate for the Registered Nurse (BRN) Courses:

The BRN major is concentrated at the junior and senior levels and requires 120 credits for graduation. Before enrollment in any nursing courses, students must meet the following criteria:

- Official admission to the BRN major
  - Completion of all science credits required for the degree. The remaining non-nursing credits can be taken at any time in the program; however students are strongly encouraged to complete non-nursing requirements prior to enrollment in nursing courses.
- Submission and approval of:
- Nursing Employment Verification Form
  - The process must be completed before enrollment in the student's first nursing course.
  - Updated immunization record to Student Health and the School of Nursing
  - Current RN license

### Policies

In order to meet degree requirements, nursing majors must have a minimum cumulative GPA of 2.0 to progress in the nursing sequence. A student who earns a grade lower than C- in a nursing course must repeat the course and achieve a grade of at least C- before enrolling in a more advanced nursing course.

Students are not permitted to repeat any nursing course more than once. Students who earn a grade lower than C- in more than one nursing course will not be permitted to continue in the program. Students should have regular contact with their advisor to ensure that all requirements are being met.

Students are required to meet all immunization, safety, criminal background checks, drug screenings, and CPR requirements prior to clinical coursework and direct patient care. Additional requirements for clinical education may be required by the healthcare agency to which a student is assigned. A minimum of 84 hours of clinical time is required to complete NURS 443. Students are expected to provide their own transportation to all required clinical experiences.

#### Academic Progression

The program is designed to facilitate timely progression for nurses who are continuing their education while employed full or part-time. There is no time limit for completion of prerequisite courses; however upon enrollment in the first nursing course, the program must be completed within a five-year period. It is possible to complete the required nursing courses in a 12-month period.

#### BACCALAUREATE FOR THE REGISTERED NURSE (BRN) (BS)

##### CURRICULUM CREDITS

##### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing 3  
(minimum grade C-)  
FYE 0-4  
Breadth Requirements 12  
Discovery Learning Experience (DLE) 3  
Multi-cultural Courses 3

##### MAJOR REQUIREMENTS

24 credits, to include a minimum of one course in each of the following five categories: 24  
(1) biology, (2) microbiology, (3) chemistry, (4) anatomy and physiology, and (5) nutrition.

STAT 200 Basic Statistical Practice 3  
English course (second English composition course) 3  
Psychology course 3  
Sociology course 3  
Lifespan development course 3  
Restricted elective chosen from the following 3  
Art, Art History, History, Philosophy, Music, Theatre, Comparative Literature, Black American Studies, Economics, Political Science, Women's Studies, Foreign Languages and Literatures, Linguistics, and English.  
NURS 312 Pathophysiology 4  
NURS 335 BRN Orientation 1

NURS 345 Conceptual Foundations for Nursing Practice 3  
NURS 350 Wellness/Health Assessment 3  
NURS 362 Research Concepts in Health Care 3  
NURS 411/NURS 412 Topics in Health Care Delivery 6  
NURS 435 Leadership and Management in Health Organizations 3  
NURS 442 Community Health Nursing 3  
NURS 443 BRN Role Practicum 3  
NURS 450 BRN Capstone 1

84 hours of clinical time is required.

ELECTIVES 15

After required courses are completed, sufficient elective credits must be taken to meet the minimum credits required for the degree.

CREDITS TOTOTAL A MINIMUM OF 120

## School of Urban Affairs and Public Policy

### School of Urban Affairs and Public Policy

Telephone: (302) 831-1687

[www.udel.edu/suapp](http://www.udel.edu/suapp)

[www.udel.edu/suapp/faculty/facultylist.htm](http://www.udel.edu/suapp/faculty/facultylist.htm)

The School of Urban Affairs and Public Policy (SUAPP) offers two undergraduate degrees - a Bachelor of Science in Organizational and Community Leadership, a Minor in Organizational and Community Leadership and a Bachelor of Arts in Public Policy.

#### ORGANIZATIONAL AND COMMUNITY LEADERSHIP (BS)

Telephone: (302) 831-8711

Email: [leadership-studies@udel.edu](mailto:leadership-studies@udel.edu)

Organizational and Community Leadership majors are prepared to accept the challenge of leadership in an increasingly complex, global, and fast-paced world. Their knowledge and skills enable them to enter and succeed in a wide variety of careers.

Organizational and Community Leadership prepares students, through coursework, experiences and discovery learning, to mobilize people for ethical, socially responsible, and sustainable change that improves the quality of our lives and environments. Organizational and Community Leadership majors gain knowledge of: social, economic, political and technological factors that impact problems and paths of solutions; organizational and personal behaviors; and the complexities of, and the necessity for, collaborations among public, private and non-profit organizations. Organizational and Community Leadership students also make great strides in their own personal and professional development by gaining competencies in effective communication, decision-making, problem recognition, and strategic problem-solving. They acquire the ability to develop, communicate and implement visions and strategies that mobilize organizations and followers for change.

With careful planning and advisement, Organizational and Community Leadership majors have the opportunity to earn a Bachelor of Science degree and a Master of Public Administration (MPA) degree in less than the usual six years. An Honors Degree option is

available. Additional information is available from the program office. Students who wish to change from another major in the University are advised to contact the program office regarding policies and procedures.

#### BREADTH REQUIREMENTS

The following courses have been approved to fulfill science electives for students in the Organizational and Community Leadership major.

##### Sciences

Physical and Biological: Anthropology (ANTH 102, ANTH 104, ANTH 202), Biological Sciences, Animal Science, Chemistry, Entomology, Food Science, Geological Sciences, Marine Studies, Plant and Soil Science, Physics and Astronomy, Psychology (PSYC 314), Science. Natural: Geography (GEOG 101, GEOG 152, GEOG 220, GEOG 230, GEOG 235, GEOG 236, GEOG 250, GEOG 255, GEOG 320), Mathematics, Statistics (including PSYC 309), Computer and Information Science.

#### CURRICULUM CREDITS

##### UNIVERSITY REQUIREMENTS

ENGL 110	Critical Reading and Writing (minimum grade C-)	3
First Year Experience		0-4
Breadth Requirement		12
Discovery Learning Experience		3
Multi-cultural Course		3

##### MAJOR REQUIREMENTS

Three credits chosen from courses designated in the Registration Booklet as satisfying the Arts and Sciences Second Writing Course requirement. This requirement may be fulfilled through a course taken to complete other course requirements 3

COMM 255	Fundamentals of Communication	
or		
COMM 212	Oral Communications in Business	3
PHIL 200	Business Ethics	
or		
PHIL 202	Contemporary Moral Problems	3
PHIL 105	Critical	
or		
PHIL 207	Scientific Reasoning	3
Modern Foreign Language course		3

Communications course 3  
 Physical or Biological Science Elective 3  
 Math Course 3

Only three credits from any combination of MATH 114 and MATH 115 can count toward graduation.

MATH 201 Introduction to Statistics I 3  
 MATH 202 Introduction to Statistics II 3  
 ECON 151 Introduction to Microeconomics: Prices and Markets 3  
 ECON 152 Introduction to Microeconomics: National Economy 3  
 ANTH 101 Introduction to Social and Cultural Anthropology Sociology course 3  
 Political Science Course 3

ACCT 200, ACCT 207 or FINC 200 3

ACCT 352 Law and Social Issues in Business 3  
 BUAD 301 Introduction to Marketing 3  
 LEAD 100 Leadership, Integrity and Change 3  
 LEAD 101 Global Contexts for Leadership 3  
 LEAD 110 Perspectives on Leadership 1  
 LEAD 200 The Leadership Challenge 3  
 LEAD 209 Presentation Strategies 3  
 LEAD 300 Leadership, Innovation and Creativity 3  
 LEAD 341 Decision-Making and Leadership 3  
 LEAD 400 Leadership for the Common Good 3  
 LEAD 404 Leadership in Organizations 3  
 LEAD 411 Topics in Leadership Dynamics 3  
 LEAD 490 Senior Capstone 3

A grade of C- or better is required in all LEAD courses.

#### AREA OF INTEREST REQUIREMENT 12

Students will also complete 12 credits drawn from a list of eligible courses in one area of interest or 6 credits drawn from a list of eligible courses in each of two areas of interest. The areas of interest and eligible courses will be updated and posted annually on the Organizational Leadership program website. Substitute courses may be proposed by the student with the approval of the faculty advisor. With the approval of their faculty

advisor, students may fulfill the area of interest requirement by completing a minor outside of the Organizational Leadership program (examples of appropriate minors: resource economics, political science, legal studies, business administration, entrepreneurial studies, and international business).

Environmental Sustainability  
 GEOG 230 Humans and the Earth Ecosystem  
 GEOG 240 Environmental and Behaviour  
 LEAD 451 Leadership for Sustainability  
 ECON 343 Environmental Economics  
 FREC 444 Economics of Environmental Management  
 UAPP 626 Conservation and Renewable Energy Policy

#### Global Perspectives

GEOG 210 Economic Geography  
 GEOG 236 Conservation: Global Issues  
 ANTH 312 Asian Women in the Globalized Workspace  
 SOCI 328 Work in a Global Economy  
 ANTH 382 Anthropology and Business  
 ECON 341 Environment of Multinational corporations

#### Intercultural Dynamics

HDFS 230 Families and Their Communities  
 HDFS 333 Development of Human Relationships  
 GEOG 203 Introduction to Cultural Geography  
 GEOG 310 Social Geography  
 SOCI 328 Work in a Global Economy  
 ANTH 382 Anthropology and Business  
 COMM 263 Intercultural Dynamics  
 HRIM 316 Cross Cultural Etiquette and protocol

Limit of one location specific course - examples:

ANTH 210 People and Cultures of southeast Asia  
 ANTH 211 People and Cultures of East Asia  
 ANTH 212 People and Cultures of Muslim World  
 ANTH 261 People and Cultures of the Middle East  
 ANTH 333 People of Africa  
 SOCI 319 Sociology of Latin America

#### Public Policy

UAPP 220 Community and Change  
 UAPP 325 Public Policy Analysis

UAPP 427	Evaluating Public Policy
UAPP 440	Contemporary Policy Issues
UAPP 419	Policy Leadership and Ethics
UAPP 410	Making Convincing Policy Arguments

### ELECTIVES

After required courses are completed, sufficient elective credits must be taken to meet the minimum credits required for the degree. May include Military Science, Music, or Physical Education. Only two credits of activity-type Physical Education and four credits of Music ensemble and four credits 100- and 200-level courses in Military Science/Air Force may be counted toward the degree.

CREDITS TO TOTAL A MINIMUM OF 120

### HONORS - ORGANIZATIONAL AND COMMUNITY LEADERSHIP (BS)

The recipient must complete:

1. All requirements for the Bachelor of Science degree in Organizational and Community Leadership.
2. All the University's generic requirements for the Honors Baccalaureate Degree. Within these requirements, the twelve (12) honors credits earned in Organizational and Community Leadership courses or in closely related areas outside the program must be approved by the student's advisor. Of these, a minimum of six (6) credits must be taken in the Organizational and Community Leadership Program.

### MINOR IN ORGANIZATIONAL AND COMMUNITY LEADERSHIP

The Organizational and Community Leadership minor provides an opportunity for students from a variety of disciplines to gain a substantive introduction to the concept of leadership and the application of leadership to designing, managing, and evaluating change in our public, private, and non-profit organizations. The hallmark of the minor is a focus on how vision, integrity, change, communication, decision-making, and evaluation influence leadership and shape change in organizations and in the community. The minor in Organizational and Community Leadership requires 18 credit hours, distributed as follows: all core courses listed below (9 credits) and three additional courses of restricted electives (9 credits) selected in

consultation with and approved by the student's minor advisor. One of these restricted electives must be selected from approved COMM courses. The remaining 6 credits must be selected from outside the student's major field of study, and must be chosen from the following topic areas: Leadership in Context; Integrity/Ethics; and/or Leadership Competencies.

All courses included in the minor must be completed with a grade of C- or better.

LEAD 100	Leadership, Integrity and Change	3
OR		
LEAD 101	Global Contexts for Leadership	3
LEAD 200	The Leadership Challenge	3
LEAD 300	Leadership, Innovation and Creativity	3
Restricted Electives		9

Admission to the minor is by application. For further information, contact the Organizational and Community Leadership Program, 182 Graham Hall, (302) 831-8711, leadership-studies@udel.edu.

### PUBLIC POLICY (BA)

The School of Urban Affairs and Public Policy (SUAPP) offers the Bachelor of Arts degree in Public Policy that provides students the opportunity to examine complex public issues and the policies developed to address them through a multiple set of disciplines such as Sociology, Education, Leadership, History, and Political Science. The Public Policy degree integrates concepts across different disciplines equipping students with the tools required to examine and understand the purpose and impacts of public policies that address the social, economic, political and environmental conditions affecting communities in the U.S. and globally. Within a liberal arts context, the program focuses on building core skills and professional dispositions so students can effectively take on public policy roles of responsibility that contribute to communities and society at large. In addition, students can pursue their individual interests through a minor that fosters a depth of understanding within a specific content area and through directed electives that provide more exploratory opportunities.

Under the guidance of an interdisciplinary faculty

and through field-based learning activities, students will develop the capacity to engage in policy analysis and policy formation. The degree is designed to develop students' curiosity, confidence, and engagement through the direct interaction with challenging, real-world issues and with those whose responsibility it is to address them.

As a result, Public Policy majors will learn how to effect change in the public, nonprofit and private sectors, specifically preparing them to be entry-level policy analysts, public officials, and community/ civic leaders. Majors will also be prepared for graduate work in law, public administration, environmental studies, public policy, and health care administration as well as being able to pursue Masters and Ph.D. degrees in the School of Urban Affairs & Public Policy.

Students who wish to change from another major in the University are encouraged to contact the SUAPP Office for more information.

#### Curriculum Credits

##### UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing (minimum grade C-) 3  
 First Year Experience 0-4  
 Discovery Learning Experience (UAPP 300) 3  
 Breadth Requirements 12  
 Multi-cultural Course 3

##### MAJOR REQUIREMENTS

Second Writing Requirement: 3

This requirement involves a second writing course that emphasizes professional and/or technical writing. Creative writing courses will not meet this requirement. This course must be taken after completion of 60 credit hours.

Mathematics requirement 3-4  
 (one of the following courses with a minimum grade of D-)

MATH 114 College Mathematics and Statistics  
 MATH 201 Introduction to Statistical Methods I

##### Breadth requirements

Group A - 9 credits of courses representing at least two departments or appropriate instructional units  
 Group B - 9 credits of courses representing

at least two departments or appropriate instructional units

Group C - 9 credits including ECON 151, ECON 152, and one other elective representing another department or appropriate instructional unit

Group D - 9 credits of courses representing at least two departments or appropriate instructional units

##### Major Core Courses 30

UAPP 110 Changing the World: The Role of Public Policy 3  
 UAPP 220 Citizens, Community, and Change 3  
 UAPP 225 Crafting Public Policy 3  
 UAPP 325 Public Policy Analysis 3  
 UAPP 419 Policy Leadership and Ethics 3  
 UAPP 427 Evaluating Public Policy 3  
 UAPP 300 Public Policy Field Experience 3  
 UAPP 410 Making Convincing Policy Arguments 3  
 UAPP 440 Contemporary Policy Issues 3  
 Advanced Economics requirement 3

Students are expected to complete one of the following economics courses:

ECON 311 Economics of Developing Countries  
 ECON 332 Economics of Government Spending and Taxation  
 ECON 340 International Economics  
 ECON 343 Environmental Economics  
 ECON 360 Government Regulation of Business  
 ECON 393 Urban Economics

##### Areas of Policy Focus

Minor 15-18

Majors are required to choose any of the University of Delaware approved minors with SUAPP faculty advisor's approval. A waiver of this requirement can be made with School approval only if a student is pursuing a double major.

Electives 16-24

Majors are encouraged to elect courses from the following:

##### Energy & Environment

ENEP 425 Energy Resources, Technologies, and Policies  
 ENEP 426 Climate Change: Science, Policy and Political Economy  
 ENEP 666 Special Problems in Energy Policy

## Health

POSC 343/SOCI 343	Society, Politics and Health Care
HDFS 201	Life Span Development
HDFS 270	Families & Developmental Disabilities
HDFS 401	Foundations of Human Sexuality
HDFS 403	Concepts in Gerontology
ECON 390	Economics of Health Care

## Historic Preservation

UAPP 629	Theory & Practice in Historic Preservation
UAPP 667	World Heritage Sites
UAPP 630	Methods in Historic Preservation
MSST 408	Public History: Research, Resources, & Practice

## Human Development and Family Studies

HDFS 230	Families and their Communities
HDFS 402	Family and Child Policy
HDFS 475	Topics in Human Development & Family Studies

## Public Administration

UAPP 620	Criminal Justice Administration
UAPP 651	Managing Risk and Security
LEAD 404	Leadership in Organizations
UAPP 687	State Government Policy & Management

## Urban Issues

UAPP 607	Seminar in Community Development & Nonprofit Leadership
UAPP 608	Poverty, Neighborhoods, & Community Development
UAPP 639	Community Development Theory, Concepts, and Practice
UAPP 649	Civil Rights Law & Policy
UAPP 612	Urban Housing Policy & Administration
UAPP 628	Issues in Land Use and Environmental Planning
UAPP 614	The American Suburb and Sprawl