The college offers dual majors with business administration, cognitive psychology, biology, mathematics, physics, environmental science, digital art, multimedia studies, and music technology, as well as a dual major in computer science and information science. Each of the dual majors offers the opportunity for intense study in two disciplines with appropriate breadth in the liberal arts. Students take eight to twelve courses in each discipline and two or three integrative courses that bind the disciplines together. These programs offer an excellent educational opportunity for the ambitious student.

BS in Computer Science and Information Science

**Computer Science Overview**
Freshmen or freshmen transfers complete the following two courses:

- CS 1200 Computer/Information Science Overview 1 1 SH
- CS 1210 Computer/Information Science Overview 2 1 SH

Upper-level transfer students complete the following course:

- CS 1220 Computer/Information Science Co-op Preparation 1 SH

**Computer Science Fundamental Courses**
Complete the following four courses, with corresponding labs, as indicated. A grade of C– or higher is required in each course:

- CS 1800 Discrete Structures 4 SH
- CS 2500 Fundamentals of Computer Science 1 4 SH
  with CS 2501 Lab for CS 2500 1 SH
- CS 2510 Fundamentals of Computer Science 2 4 SH
  with CS 2511 Lab for CS 2510 1 SH
- CS 2800 Logic and Computation 4 SH
  with CS 2801 Lab for CS 2800 1 SH

**Computer Science Required Courses**
Complete the following eight courses:

- CS 2600 Computer Organization 4 SH
- CS 3200 Database Design 4 SH
- CS 3500 Object-Oriented Design 4 SH
- CS 3600 Systems and Networks 4 SH
- CS 3800 Theory of Computation 4 SH
- CS 4400 Programming Languages 4 SH
- CS 4500 Software Development 4 SH
- CS 4800 Algorithms and Data 4 SH

**Information Science Courses**

**Required Courses in Information Science**
Complete the following five courses:

- IS 2000 Principles of Information Science 4 SH
- IS 3500 Information System Design and Development 4 SH

**Mathematics and Statistics Requirements**

**Calculus**
Complete the following two courses with a grade of C– or higher in MATH 1341:

- MATH 1341 Calculus 1 for Science and Engineering 4 SH
- MATH 2331 Linear Algebra 4 SH

**Statistics**
Complete the following course:

- ECON 2350 Statistics 4 SH

**Required General Electives**

**Science Elective**
One general elective must be a science course chosen from the NU Core science/technology level 1 domain. This course may not be a technology course. Corresponding lab must be taken with lecture where applicable. **Note:** For this requirement, a science course is defined to be any course in the NU Core science/technology level 1 domain that is not in the College of Computer and Information Science or in the College of Engineering.

**Additional General Electives**
Complete four additional general electives. One of these electives must be used to satisfy the NU Core arts/humanities level 1 requirement. If the NU Core comparative study of cultures requirement is to be satisfied by taking a course, then it must also be one of the general electives.

**Major GPA Requirement**
Minimum 2.000 GPA required in all CS and IS courses.

**NU Core Requirements**
See page 26 for requirement list.
GENERAL ELECTIVES
Additional courses taken beyond college and major course requirements to satisfy graduation credit requirements.

COOPERATIVE EDUCATION

UNIVERSITY-WIDE REQUIREMENTS
132 total semester hours required
Minimum 2.000 GPA required

BS in Computer Science and Biology

COMPUTER SCIENCE COURSES

Computer Science Overview
Freshmen or freshmen transfers complete one of the following sets of courses:

- CS 1200 Computer/Information Science 1 SH
  with CS 1210 Computer/Information Science 1 SH
  or BIOL 1000 Biology/Biochemistry at Northeastern 1 SH

or

- BIOL 1106 Introduction to Experiential Education 1 SH

Upper-level transfer students complete the following course:

- CS 1220 Computer/Information Science Co-op 1 SH

Computer Science Fundamental Courses
Complete the following four courses with a grade of C– or higher:

- CS 1800 Discrete Structures 4 SH
  with CS 2501 Lab for CS 2500 1 SH
- CS 2510 Fundamentals of Computer Science 2 4 SH
  with CS 2511 Lab for CS 2510 1 SH
- CS 2800 Logic and Computation 4 SH
  with CS 2801 Lab for CS 2800 1 SH

Computer Science Required Courses
Complete the following three courses:

- CS 3200 Database Design 4 SH
- CS 3500 Object-Oriented Design 4 SH
- CS 4500 Software Development 4 SH

Senior Seminar
Complete the following course:

- CS 4000 Senior Seminar 1 SH

Computer Science Integrative Courses
Complete the following two courses:

- CS 3800 Theory of Computation 4 SH
- CS 4800 Algorithms and Data 4 SH

BIOLOGY COURSES

Required Biology
Complete one course with corresponding lab for Biology 1, Biology 2, and Genetics and Molecular Biology:

- BIOL 1101 Principles of Biology 1 4 SH
  with BIOL 1102 Lab for BIOL 1101 1 SH
- BIOL 1111 General Biology 1 4 SH
  with BIOL 1112 Lab for BIOL 1111 1 SH
- BIOL 1103 Principles of Biology 2 4 SH
  with BIOL 1104 Lab for BIOL 1103 1 SH
- BIOL 1113 General Biology 2 4 SH
  with BIOL 1114 Lab for BIOL 1113 1 SH

- BIOL 2301 Genetics and Molecular Biology 4 SH
  with BIOL 2302 Lab for BIOL 2301 1 SH

Biology Capstone
Complete the following course:

- BIOL 4701 Biology Capstone 4 SH

Biology Integrative Course
Complete one of the following courses with corresponding lab, as indicated:

- BIOL 5521 Experimental Design Marine Ecology 4 SH
  with BIOL 5522 Lab for BIOL 5521 1 SH
- BIOL 6308 Bio IT Methods 1—Genome and Proteome Analysis 4 SH
- BIOL 6309 Bio IT Methods 2—Protein Structure and Systems 4 SH

Intermediate and Advanced Biology Electives
Complete two biology courses (with labs, if offered, 9–10 semester hours total) at level 2311 or above. One course (with corresponding lab, 5 semester hours total) must be from the following list:

- BIOL 2311 Ecology 4 SH
  with BIOL 2312 Lab for BIOL 2311 1 SH
- BIOL 2313 Plant Biology 4 SH
  with BIOL 2314 Lab for BIOL 2313 1 SH
- BIOL 2315 Vertebrate Zoology 4 SH
  with BIOL 2316 Lab for BIOL 2315 1 SH
- BIOL 2317 Invertebrate Zoology 4 SH
  with BIOL 2318 Lab for BIOL 2317 1 SH
- BIOL 2319 Regulatory Cell Biology 4 SH
  with BIOL 2320 Lab for BIOL 2319 1 SH
- BIOL 2321 Microbiology 4 SH
  with BIOL 2322 Lab for BIOL 2321 1 SH
- BIOL 2323 Biochemistry 4 SH
  with BIOL 2324 Lab for BIOL 2323 1 SH

An additional course (with lab, if offered, 4–5 semester hours total) must be in the following range:

- BIOL 2311 to BIOL 4989

Chemistry Courses
Complete the following four courses with corresponding labs:

- CHEM 1211 General Chemistry 1 4 SH
  with CHEM 1212 Lab for CHEM 1211 1 SH
- CHEM 1214 General Chemistry 2 4 SH
  with CHEM 1215 Lab for CHEM 1214 1 SH
CHEM 2311 Organic Chemistry 1 4 SH
with CHEM 2312 Lab for CHEM 2311 1 SH
CHEM 2313 Organic Chemistry 2 4 SH
with CHEM 2314 Lab for CHEM 2313 1 SH

**MATHEMATICS REQUIREMENTS**
Complete the following two calculus courses with a grade of C– or higher, and complete the probability and statistics course:

**Calculus**
MATH 1251 Calculus and Differential Equations for Biology 1 4 SH
MATH 1252 Calculus and Differential Equations for Biology 2 4 SH

**Probability and Statistics**
MATH 3081 Probability and Statistics 4 SH

**COMPUTERS AND SOCIETY**
Complete the following course:
SOCL 4528 Computers and Society 4 SH

**REQUIRED GENERAL ELECTIVES**
Complete six general electives. One of these electives must be used to satisfy the NU Core arts/humanities level 1 requirement and one must be used to satisfy the NU Core social science level 1 requirement. If the NU Core comparative study of cultures requirement is to be satisfied by taking a course, then it must also be one of the general electives.

**MAJOR GPA REQUIREMENT**
Minimum 2.000 GPA required in all CS and IS courses

**NU CORE REQUIREMENTS**
See page 26 for requirement list.

**GENERAL ELECTIVES**
Additional courses taken beyond college and major course requirements to satisfy graduation credit requirements.

**COOPERATIVE EDUCATION**

**UNIVERSITY-WIDE REQUIREMENTS**
141 total semester hours required
Minimum 2.000 GPA required

**BS in Computer Science and Business Administration**

**COMPUTER SCIENCE COURSES**

**Computer Science Overview**
Freshmen or freshmen transfers complete the following two courses:
CS 1200 Computer/Information Science Overview 1 1 SH
CS 1210 Computer/Information Science Overview 2 1 SH

Upper-level transfer students complete the following course:
CS 1220 Computer/Information Science Co-op Preparation 1 SH

**Computer Science Fundamental Courses**
Complete the following four courses with corresponding labs, as indicated. A grade of C– or higher is required in each course:
CS 1800 Discrete Structures 4 SH
CS 2500 Fundamentals of Computer Science 1 4 SH
with CS 2501 Lab for CS 2500 1 SH
CS 2510 Fundamentals of Computer Science 2 4 SH
with CS 2511 Lab for CS 2510 1 SH
CS 2800 Logic and Computation 4 SH
with CS 2801 Lab for CS 2800 1 SH

**Computer Science Required Courses**
Complete the following six courses:
CS 2600 Computer Organization 4 SH
CS 3200 Database Design 4 SH
CS 3500 Object-Oriented Design 4 SH
CS 3600 Systems and Networks 4 SH
CS 3800 Theory of Computation 4 SH
CS 4500 Software Development 4 SH

**Computer Science Senior Seminar**
Complete the following course:
CS 4000 Senior Seminar 1 SH

**Upper-Division CS/IS Elective**
Complete one upper-division CS/IS elective. With advisor approval, a directed study, project study, or appropriate graduate-level course may also be taken as a computer science elective:
CS 3200 to CS 4993
IS 4200 Information Retrieval 4 SH
IS 4300 Human Computer Interaction 4 SH

**BUSINESS COURSES**

**Required Business Courses**
Complete the following seven courses:
ACCT 1201 Financial Accounting and Reporting 4 SH
ACCT 2301 Managerial Accounting 4 SH
FINA 2201 Financial Management 4 SH
MGSC 1201 Business Statistics 4 SH
MKTG 2201 Introduction to Marketing 4 SH
ORGB 3201 Organizational Behavior 4 SH
STRT 4501 Strategy in Action 4 SH

**BUSINESS CONCENTRATION**
Complete a four-course business concentration from the following list:

**Concentration in Accounting**
Complete the following two courses:
ACCT 3401 Financial Reporting and Analysis 1 4 SH
ACCT 4501 Financial Reporting and Analysis 2 4 SH

and two electives from the following list:
ACCT 3403 Accounting Information Systems 4 SH
ACCT 3416 Strategic Cost Analysis for Decision Making 4 SH
ACCT 4412 Auditing and Other Assurance Services 4 SH
ACCT 4414 Income Tax Determination and Planning 4 SH

Concentration in Entrepreneurship and Innovation
Complete the following four courses:
ENTR 2201 The Entrepreneurial Universe 4 SH
ENTR 3301 Opportunity Assessment and Entrepreneurship Marketing 4 SH
ENTR 3401 Small Business Management, Operations, and Growth 4 SH
ENTR 4501 Venture Creation and Entrepreneurial Finance 4 SH
or ENTR 4503 Small Business Service and Retail Creation 4 SH

Concentration in Finance
Complete the following two courses:
FINA 3301 Corporate Finance 4 SH
FINA 3303 Investments 4 SH
and two additional FINA courses.

Concentration in Management
Complete the following course:
MGMT 3303 Building Your Management Skills 4 SH
and three additional MGMT courses.

Concentration in Marketing
Complete the following two courses:
MKTG 3301 Marketing Management 4 SH
MKTG 3401 Marketing Research 4 SH
and two additional MKTG courses.

Concentration in Supply Chain Management
Complete the following four courses:
SCHM 2201 Supply Chain Management 4 SH
SCHM 3301 Global Supply Chain Management 4 SH
SCHM 3310 The Transportation Industries 4 SH
SCHM 4401 Advanced Problems in Supply Chain Management 4 SH

Information Resource Management
Information Resource Management
Complete the following course. Note: MISM 3305 is an integrative course:
MISM 3305 Information Resource Management 4 SH

Mathematics and General Requirements
Mathematics
Complete one of the following courses:
MATH 1231 Calculus for Business and Economics 4 SH
MATH 1340 Intensive Calculus for Engineers 6 SH
MATH 1341 Calculus I for Science and Engineering 4 SH

Economics
Complete the following two courses:
ECON 1115 Principles of Macroeconomics 4 SH
ECON 1116 Principles of Microeconomics 4 SH

Computers and Society
Complete the following course:
SOCL 4528 Computers and Society 4 SH

Required General Electives—CS/IS and Business
Complete three general electives. One of these electives must be used to satisfy the NU Core arts/humanities level 1 requirement. If the NU Core comparative study of cultures requirement is to be satisfied by taking a course, then it must also be one of the general electives. Note: Computer science/business administration dual majors may satisfy the latter requirement by completing the following course:
INTB 1203 International Business and Global Social Responsibility 4 SH

Major GPA Requirement
Minimum 2.000 GPA required in all CS and IS courses

NU Core Requirements
See page 26 for requirement list.

General Electives
Additional courses taken beyond college and major course requirements to satisfy graduation credit requirements.

Cooperative Education

University-Wide Requirements
133 total semester hours required
Minimum 2.000 GPA required

BS in Computer Science and Cognitive Psychology

Computer Science Courses

Computer Science Overview
Freshmen or freshmen transfers complete the following two courses:
CS 1200 Computer/Information Science Overview 1 SH
CS 1210 Computer/Information Science Overview 2 SH

Upper-level transfer students complete the following course:
CS 1220 Computer/Information Science Co-op Preparation 1 SH

Computer Science Fundamental Courses
Complete the following four courses with corresponding labs, as indicated. A grade of C– or higher is required in each course:
CS 1800 Discrete Structures 4 SH
CS 2500 Fundamentals of Computer Science 1 4 SH
with CS 2501 Lab for CS 2500 1 SH
CS 2510 Fundamentals of Computer Science 2 4 SH  
with CS 2511 Lab for CS 2510 1 SH  
CS 2800 Logic and Computation 4 SH  
with CS 2801 Lab for CS 2800 1 SH  

Computer Science Required Courses  
Complete the following five courses:  
CS 3500 Object-Oriented Design 4 SH  
CS 3800 Theory of Computation 4 SH  
CS 4100 Artificial Intelligence 4 SH  
CS 4500 Software Development 4 SH  
IS 4300 Human Computer Interaction 4 SH  

Computer Science Senior Seminar  
Complete the following course:  
CS 4000 Senior Seminar 1 SH  

Computer Science Elective Courses  
Complete two upper-division computer science courses. With advisor approval, directed study, project study, and appropriate graduate-level courses may also be taken as computer science electives:  
CS 2600 Computer Organization 4 SH  
CS 3200 to CS 4993  
IS 4200 Information Retrieval 4 SH  

PSYCHOLOGY COURSES  
Required Courses  
Complete the following four courses:  
PSYC 1101 Foundations of Psychology 4 SH  
PSYC 2320 Statistics in Psychological Research 4 SH  
PSYC 3464 Psychology of Language 4 SH  
PSYC 3466 Cognition 4 SH  

Advanced Psychology  
Complete one course from the following list:  
PSYC 3452 Sensation and Perception 4 SH  
PSYC 3458 Psychobiology 4 SH  

Laboratory in Psychology  
Complete one course from the following list:  
PSYC 4610 Laboratory in Psycholinguistics 4 SH  
PSYC 4612 Laboratory in Cognition 4 SH  
PSYC 4622 Laboratory in Sensation and Perception 4 SH  

Seminar in Psychology  
Complete one course from the following list:  
PSYC 4658 Seminar in Psycholinguistics 4 SH  
PSYC 4660 Seminar in Cognition 4 SH  
PSYC 4668 Seminar in Sensation and Perception 4 SH  

Psychology Electives  
Complete two courses from the following list: Note: Courses satisfying the categories above cannot be reused:  
PSYC 3402 Social Psychology 4 SH  
PSYC 3450 Learning and Motivation 4 SH  
PSYC 3452 Sensation and Perception 4 SH  
PSYC 3458 Psychobiology 4 SH  
PSYC 3526 Categorization and Reasoning 4 SH  
PSYC 4520 Language and the Brain 4 SH  
PSYC 4522 Psychology of Reading 4 SH  
PSYC 4524 Cognitive Development 4 SH  
PSYC 4610 Laboratory in Psycholinguistics 4 SH  
PSYC 4612 Laboratory in Cognition 4 SH  
PSYC 4622 Laboratory in Sensation and Perception 4 SH  
PSYC 4652 Seminar in Ethics in Psychology 4 SH  
PSYC 4658 Seminar in Psycholinguistics 4 SH  
PSYC 4660 Seminar in Cognition 4 SH  
PSYC 4668 Seminar in Sensation and Perception 4 SH  
PSYC 4970 Junior/Senior Honors Project 1 4 SH  
with PSYC 4971 Junior/Senior Honors Project 2 4 SH  

ADDITIONAL REQUIREMENTS  
Calculus  
Complete the following course:  
MATH 1341 Calculus 1 for Science and Engineering 4 SH  

Computers and Society  
Complete the following course:  
SOCL 4528 Computers and Society 4 SH  

REQUIRED GENERAL ELECTIVES  
Complete eight general electives. One of these electives must be used to satisfy the NU Core arts/humanities level 1 requirement. If the NU Core comparative study of cultures requirement is to be satisfied by taking a course, then it must also be one of the general electives.  

MAJOR GPA REQUIREMENT  
Minimum 2.000 GPA required in all CS and IS courses  

NU CORE REQUIREMENTS  
See page 26 for requirement list.  

GENERAL ELECTIVES  
Additional courses taken beyond college and major course requirements to satisfy graduation credit requirements.  

COOPERATIVE EDUCATION  

UNIVERSITY-WIDE REQUIREMENTS  
133 total semester hours required  
Minimum 2.000 GPA required  

BS in Computer Science and Digital Art  

COMPUTER SCIENCE COURSES  
Computer Science Overview  
Freshmen or freshmen transfers complete the following two courses:  
CS 1200 Computer/Information Science Overview 1 1 SH  
CS 1210 Computer/Information Science Overview 2 1 SH  

NORTHEASTERN UNIVERSITY
Upper-level transfer students complete the following course:

CS 1220 Computer/Information Science Co-op 1 SH

Preparation

**Computer Science Fundamental Courses**

Complete the following four courses with corresponding labs, as indicated. A grade of C– or higher is required in each course:

- CS 1800 Discrete Structures 4 SH
- CS 2500 Fundamentals of Computer Science 1 4 SH
  with CS 2501 Lab for CS 2500 1 SH
- CS 2510 Fundamentals of Computer Science 2 4 SH
  with CS 2511 Lab for CS 2510 1 SH
- CS 2800 Logic and Computation 4 SH
  with CS 2801 Lab for CS 2800 1 SH

**Computer Science Required Courses**

Complete the following four courses:

- CS 3200 Database Design 4 SH
- CS 3500 Object-Oriented Design 4 SH
- CS 3800 Theory of Computation 4 SH
- CS 4500 Software Development 4 SH

**Computer Science Senior Seminar**

Complete the following course:

- CS 4000 Senior Seminar 1 SH

**Integrative Courses**

Complete the following two courses:

- CS 4300 Computer Graphics 4 SH
- IS 4300 Human Computer Interaction 4 SH

**Computer Science Elective Courses**

Complete two upper-division computer science courses. With advisor approval, directed study, project study, and appropriate graduate-level courses may also be taken as computer science electives:

- CS 2600 Computer Organization 4 SH
- CS 3200 to CS 4993
- IS 4200 Information Retrieval 4 SH

**DIGITAL ART COURSES**

**Required Digital Art Courses**

Complete the following four courses with corresponding tools courses, as indicated:

- ARTF 1122 2D Foundation 4 SH
  with ARTD 2361 Photo Tools 1 SH
- ARTF 1123 2D Tools: Imaging Basics 1 SH
  with ARTD 2360 Photo Basics 4 SH
- ARTF 1124 3D Foundation 4 SH
  with ARTD 2370 Animation Basics 4 SH
- ARTF 1125 3D Tools: Form Basics 1 SH
  with ARTD 2371 Animation Tools 1 SH
- ARTF 2220 4D Foundation 4 SH
  with ARTD 2380 Video Basics 4 SH
- ARTF 2221 4D Tools: Motion Basics 1 SH
  with ARTD 2381 Video Tools 1 SH

**Digital Art Electives**

Complete six courses with corresponding tools courses, as indicated, from the six categories below. Normally, students are expected to complete all prerequisites for courses they wish to take. For exceptions based on some form of alternate experience, seek permission of instructor:

- ARTD 2360 Photo Basics 4 SH
- ARTD 2361 Photo Tools 1 SH
- ARTD 2370 Animation Basics 4 SH
- ARTD 2371 Animation Tools 1 SH
- ARTD 2380 Video Basics 4 SH
- ARTD 2381 Video Tools 1 SH

**PHOTOGRAPHY**

- ARTD 3460 Photography 1 4 SH
- ARTD 4560 Photography 2 4 SH
- ARTS 4602 Fine Art Digital Imaging 4 SH
- ARTD 4661 Alternative Photographic Processes 4 SH

**ANIMATION**

- ARTD 3470 Animation Studio 1 4 SH
- ARTD 4570 Animation Studio 2 4 SH
- ARTD 4575 Animation Studio 3 4 SH

**VIDEO**

- ARTD 3480 Video 1 4 SH
- ARTD 4580 Video 2 4 SH
- ARTD 4680 Video 3 4 SH

**HISTORY**

- ARTH 2212 Survey of the Still and Moving Image 4 SH

**DIRECTIONS**

- ARTD 4530 Contemporary Directions in Digital Art 4 SH

**Digital Art Capstone Requirement**

Complete the following course:

- ARTD 4670 Digital Art Degree Project 4 SH

**GENERAL REQUIREMENTS**

**Social Science Level 1**

Complete the following course, which satisfies the NU Core social science level 1 requirement:

- PSYC 1101 Foundations of Psychology 4 SH

**Mathematics**

Complete the following course:

- MATH 2331 Linear Algebra 4 SH

**Computers and Society**

Complete the following course:

- SOCL 4528 Computers and Society 4 SH

**REQUIRED GENERAL ELECTIVES**

Complete four general electives. If the NU Core comparative study of cultures requirement is to be satisfied by taking a course, then it must be one of the general electives.

**MAJOR GPA REQUIREMENT**

Minimum 2.000 GPA required in all CS and IS courses

**NU CORE REQUIREMENTS**

See page 26 for requirement list.

**GENERAL ELECTIVES**

Additional courses taken beyond college and major course requirements to satisfy graduation credit requirements.
COOPERATIVE EDUCATION

UNIVERSITY-WIDE REQUIREMENTS
137 total semester hours required
Minimum 2.000 GPA required

BS in Computer Science and Environmental Science

COMPUTER SCIENCE COURSES

Computer Science Overview
Freshmen or freshmen transfers complete the following two courses:
CS 1200 Computer/Information Science 1 SH
CS 1210 Computer/Information Science 1 SH

Upper-level transfer students complete the following course:
CS 1220 Computer/Information Science Co-op 1 SH

Computer Science Fundamental Courses
Complete the following four courses with corresponding labs, as indicated. A grade of C– or higher is required in each course:
CS 1800 Discrete Structures 4 SH
with CS 1801 Recitation for CS 1800 0 SH
CS 2500 Fundamentals of Computer Science 1 4 SH
with CS 2501 Lab for CS 2500 1 SH
CS 2510 Fundamentals of Computer Science 2 4 SH
with CS 2511 Lab for CS 2510 1 SH
CS 2800 Logic and Computation 4 SH
with CS 2801 Lab for CS 2800 1 SH

Computer Science Required Courses
Complete the following five courses:
CS 3200 Database Design 4 SH
CS 3500 Object-Oriented Design 4 SH
CS 3800 Theory of Computation 4 SH
CS 4500 Software Development 4 SH
IS 4800 Empirical Research Methods 4 SH

Computer Science Senior Seminar
Complete the following course:
CS 4000 Senior Seminar 1 SH

ENVIRONMENTAL SCIENCE COURSES

Environmental Science Required Courses
Complete the following four courses with corresponding labs, as indicated:
ENVR 1200 Dynamic Earth 4 SH
with ENVR 1201 Lab for ENVR 1200 1 SH
ENVR 1202 History of Earth and Life 4 SH
with ENVR 1203 Interpreting Earth History 1 SH
or ENVR 2310 Earth Materials 4 SH
with ENVR 2311 Lab for ENVR 2310 1 SH

ENVR 4900 Earth and Environmental Science 1 SH
Capstone
ENVR 5210 Environmental Planning 4 SH
or ENVR 5250 Geology and Land-Use Planning 4 SH

Environmental Science Integrative Courses
Complete at least two of the following courses. If the course has a corresponding lab, the lab must also be completed:
ENVR 3300 Geographic Information Systems 4 SH
with ENVR 3301 Lab for ENVR 3300 1 SH
ENVR 3302 Introduction to Remote Sensing 4 SH
with ENVR 3303 Lab for ENVR 3302 1 SH
ENVR 3418 Geophysics 4 SH
ENVR 4500 Applied Hydrogeology 4 SH
with ENVR 4501 Lab for ENVR 4500 1 SH
ENVR 5280 Groundwater Modeling 4 SH

Environmental Science Electives
Complete four courses. If a course has a corresponding lab, the lab must also be completed. If you complete more than two courses from the environmental science integrative courses (above), these courses count as environmental science electives:
ENVR 1101 Environmental Science 4 SH
ENVR 2340 Earth Landforms and Processes 4 SH
with ENVR 2341 Lab for ENVR 2340 1 SH
ENVR 3400 Field Geology 4 SH
ENVR 3410 Environmental Geochemistry 4 SH
ENVR 4106 Coastal Processes 4 SH
with ENVR 4107 Lab for ENVR 4106 1 SH
ENVR 4504 Environmental Pollution 4 SH
ENVR 4505 Wetlands 4 SH
ENVR 4563 Advanced Spatial Analysis 4 SH
ENVR 5190 Soil Science 4 SH
ENVR 5201 Geologic Field Seminar 4 SH
ENVR 5220 Structural Geology 4 SH
with ENVR 5231 Lab for ENVR 5230 1 SH
ENVR 5240 Sedimentary Basin Analysis 4 SH
with ENVR 5241 Lab for ENVR 5240 1 SH
ENVR 5242 Ancient Marine Life 4 SH
with ENVR 5243 Lab for ENVR 5242 1 SH
ENVR 5244 Sedimentation 4 SH
ENVR 5248 Marine Geology 4 SH
ENVR 5270 Glacial and Quaternary History 4 SH
with ENVR 5271 Lab for ENVR 5270 1 SH
ENVR 5282 Groundwater Geochemistry 4 SH
INTL 4937 Dialogue of Civilizations: Science and Technology 4 SH

ADDITIONAL REQUIREMENTS

Calculus
Complete the following two courses:
MATH 1251 Calculus and Differential Equations 4 SH
for Biology 1
or MATH 1341 Calculus 1 for Science and Engineering 4 SH
MATH 1252 Calculus and Differential Equations 4 SH
or MATH 1342 Calculus 2 for Science and Engineering 4 SH

Chemistry
Complete the following two courses with corresponding labs:
CHEM 1211 General Chemistry 1 4 SH
with CHEM 1212 Lab for CHEM 1211 1 SH
CHEM 1214 General Chemistry 2 4 SH
with CHEM 1215 Lab for CHEM 1214 1 SH

Computers and Society
Complete the following course:
SOCL 4528 Computers and Society 4 SH

REQUIRED GENERAL ELECTIVES
Complete seven general electives. One of these electives must be used to satisfy the NU Core arts/humanities level 1 requirement and one must be used to satisfy the NU Core social science level 1 requirement. If the NU Core comparative study of cultures requirement is to be satisfied by taking a course, then it must also be one of the general electives.

NU CORE REQUIREMENTS
See page 26 for requirement list.

GENERAL ELECTIVES
Additional courses taken beyond college and major course requirements to satisfy graduation credit requirements.

COOPERATIVE EDUCATION
UNIVERSITY-WIDE REQUIREMENTS
139 total semester hours required
Minimum 2.000 GPA required

BS in Computer Science and Game Design

COMPUTER SCIENCE COURSES

Computer Science Overview
Freshmen or freshmen transfers complete the following two courses:
CS 1200 Computer/Information Science Overview 1 1 SH
CS 1210 Computer/Information Science Overview 2 1 SH
Upper-level transfer students complete the following course:
CS 1220 Computer/Information Science Co-op Preparation 1 SH

Computer Science Fundamental Courses
Complete the following four courses, with corresponding labs, as indicated. A grade of C– or higher is required in each course:
CS 1800 Discrete Structures 4 SH
with CS 1801 Recitation for CS 1800 0 SH
CS 2500 Fundamentals of Computer Science 1 4 SH
with CS 2501 Lab for CS 2500 1 SH
CS 2510 Fundamentals of Computer Science 2 4 SH
with CS 2511 Lab for CS 2510 1 SH
CS 2800 Logic and Computation 4 SH
with CS 2801 Lab for CS 2800 1 SH

Computer Science Required Courses
Complete the following three courses:
CS 3500 Object-Oriented Design 4 SH
CS 3800 Theory of Computation 4 SH
CS 4500 Software Development 4 SH

Computer Science Senior Seminar
Complete the following senior seminar:
CS 4000 Senior Seminar 1 SH

Computer Science Integrative Courses
Complete the following two courses:
CS 4300 Computer Graphics 4 SH
IS 4300 Human Computer Interaction 4 SH

GENERAL REQUIREMENTS

Social Science Level 1
Complete the following course:
PSYC 1101 Foundations of Psychology 4 SH

Mathematics
Complete the following course:
MATH 1260 Math Fundamentals for Games 4 SH

Computers and Society
Complete the following course:
SOCL 4528 Computers and Society 4 SH

GAME DESIGN COURSES

Art + Design Courses
Complete the following five courses, with corresponding tools courses, as indicated:
ARTF 1122 2D Foundation 4 SH
with ARTF 1123 2D Tools: Imaging Basics 1 SH
ARTF 1124 3D Foundation 4 SH
with ARTF 1125 3D Tools: Form Basics 1 SH
ARTF 2220 4D Foundation 4 SH
with ARTF 2221 4D Tools: Motion Basics 1 SH
ARTF 2223 Interactive Foundation 4 SH
with ARTF 2224 Interactive Tools 1 SH
ARTD 2370 Animation Basics 4 SH
with ARTD 2371 Animation Tools 1 SH

Game Design Courses
Complete the following seven courses:
GAME 1110 Games and Society 4 SH
GAME 2150 Programming for Games 4 SH
GAME 3150 Game Design Algorithms 4 SH
GAME 3700 Game Projects: Preproduction 4 SH
GAME 3800 Game Projects: Assets and Prototyping 4 SH
GAME 4700 Game Design Capstone 1 4 SH
GAME 4701 Game Design Capstone 2 4 SH
CREATIVE INDUSTRIES ELECTIVES
Complete three courses from the following lists. If the course has prerequisites, the student must complete those first unless permission is obtained in advance from the program office. If the course requires a corresponding lab or tools course, that course must be taken as well:

**Art + Design**
- ARTH 1111 Art + Design History since 1400 4 SH
- ARTH 2210 Art + Design History, 1900 to 1945 4 SH
- ARTH 2212 Survey of the Still and Moving Image 4 SH

**Digital Art: Animation**
- ARTD 3470 Animation Studio 1 4 SH
- ARTD 4570 Animation Studio 2 4 SH
- ARTD 4575 Animation Studio 3 4 SH

**Digital Art: Photography**
- ARTD 2360 Photo Basics 4 SH
  with ARTD 2361 Photo Tools 1 SH
- ARTD 3460 Photography 1 4 SH
- ARTD 4560 Photography 2 4 SH
- ARTD 4661 Alternative Photographic Processes 4 SH

**Digital Art: Video**
- ARTD 2380 Video Basics 4 SH
  with ARTD 2381 Video Tools 1 SH
- ARTD 3480 Video 1 4 SH

**Graphic Design**
- ARTG 2250 Typography 1 4 SH
  with ARTG 2251 Type Tools 1 SH
- ARTG 2252 Graphic Design 1 4 SH
- ARTG 3350 Typography 2 4 SH

**Interactive Media**
- IM 1110 Interactive Media and Society 4 SH
- IM 2100 Digital Narrative 1 4 SH
- IM 2200 Digital Narrative 2 4 SH
- IM 2300 Managing Media Development 4 SH
- IM 2400 Web Design and Development 4 SH
  with IM 2401 Web Development Tools 1 SH
- IM 3200 Interactive Sound Development 4 SH
- IM 4992 Directed Study 4 SH
- IM 4993 Independent Study 4 SH

**Computer Science**
- CS 3200 Database Design 4 SH
- CS 4100 Artificial Intelligence 4 SH
- CS 4400 Programming Languages 4 SH
- CS 4550 Web Development 4 SH
- CS 4800 Algorithms and Data 4 SH
- CS 4910 Computer Science Topics 4 SH
- CS 4992 Directed Study 4 SH
- CS 4993 Independent Study 4 SH

**Psychology**
- PSYC 3452 Sensation and Perception 4 SH
- PSYC 3464 Psychology of Language 4 SH
- PSYC 3466 Cognition 4 SH

REQUIRED GENERAL ELECTIVES
Complete three general electives. If the NU Core comparative study of cultures requirement is to be satisfied by taking a course, then it must be one of the general electives.

NU CORE REQUIREMENTS
See page 26 for requirement list.

GENERAL ELECTIVES
Additional courses taken beyond college and major course requirements to satisfy graduation credit requirements.

COOPERATIVE EDUCATION

UNIVERSITY-WIDE REQUIREMENTS
139 total semester hours required
Minimum 2.000 GPA required

BS in Computer Science and Interactive Media

COMPUTER SCIENCE COURSES

**Computer Science Overview**
Freshmen or freshmen transfers complete the following two courses:
- CS 1200 Computer/Information Science Overview 1 1 SH
- CS 1210 Computer/Information Science Overview 2 1 SH

Upper-level transfer students complete the following course:
- CS 1220 Computer/Information Science Co-op Preparation 1 SH

**Computer Science Fundamental Courses**
Complete the following four courses, with corresponding labs, as indicated. A grade of C– or higher is required in each course:
- CS 1800 Discrete Structures 4 SH
  with CS 1801 Recitation for CS 1800 0 SH
- CS 2500 Fundamentals of Computer Science 1 4 SH
  with CS 2501 Lab for CS 2500 1 SH
- CS 2510 Fundamentals of Computer Science 2 4 SH
  with CS 2511 Lab for CS 2510 1 SH
- CS 2800 Logic and Computation 4 SH
  with CS 2801 Lab for CS 2800 1 SH

**Computer Science Required Courses**
Complete the following three courses:
- CS 3500 Object-Oriented Design 4 SH
- CS 3800 Theory of Computation 4 SH
- CS 4500 Software Development 4 SH

**Computer Science Senior Seminar**
Complete the following senior seminar:
- CS 4000 Senior Seminar 1 SH

**Computer Science Integrative Courses**
Complete the following two courses:
- CS 4300 Computer Graphics 4 SH
- IS 4300 Human Computer Interaction 4 SH
**INTERACTIVE MEDIA REQUIREMENTS**

**Interactive Media Courses**
Complete the following seven courses, with corresponding lab, as indicated:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>SH</th>
</tr>
</thead>
<tbody>
<tr>
<td>IM 1110</td>
<td>Interactive Media and Society</td>
<td>4</td>
</tr>
<tr>
<td>IM 2100</td>
<td>Digital Narrative 1</td>
<td>4</td>
</tr>
<tr>
<td>IM 2250</td>
<td>Programming for Digital Media</td>
<td>4</td>
</tr>
<tr>
<td>IM 2400</td>
<td>Web Design and Development</td>
<td>4</td>
</tr>
<tr>
<td>IM 2401</td>
<td>Web Development Tools</td>
<td>1</td>
</tr>
<tr>
<td>IM 3200</td>
<td>Interactive Sound Development</td>
<td>4</td>
</tr>
<tr>
<td>IM 4700</td>
<td>Interactive Media Capstone 1</td>
<td>4</td>
</tr>
<tr>
<td>IM 4701</td>
<td>Interactive Media Capstone 2</td>
<td>4</td>
</tr>
</tbody>
</table>

**Art + Design**
Complete the following four courses with corresponding tools courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>SH</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTF 1122</td>
<td>2D Foundation</td>
<td>4</td>
</tr>
<tr>
<td>ARTF 1123</td>
<td>2D Tools: Imaging Basics</td>
<td>1</td>
</tr>
<tr>
<td>ARTF 1124</td>
<td>3D Foundation</td>
<td>4</td>
</tr>
<tr>
<td>ARTF 1125</td>
<td>3D Tools: Form Basics</td>
<td>1</td>
</tr>
<tr>
<td>ARTF 2220</td>
<td>4D Foundation</td>
<td>4</td>
</tr>
<tr>
<td>ARTF 2221</td>
<td>4D Tools: Motion Basics</td>
<td>1</td>
</tr>
<tr>
<td>ARTF 2223</td>
<td>Interactive Foundation</td>
<td>4</td>
</tr>
<tr>
<td>ARTF 2224</td>
<td>Interactive Tools</td>
<td>1</td>
</tr>
</tbody>
</table>

**GENERAL REQUIREMENTS**

**Social Science Level 1**
Complete the following course:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>SH</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 1101</td>
<td>Foundations of Psychology</td>
<td>4</td>
</tr>
</tbody>
</table>

**Mathematics**
Complete the following course:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>SH</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 1260</td>
<td>Math Fundamentals for Games</td>
<td>4</td>
</tr>
</tbody>
</table>

**Computers and Society**
Complete the following course:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>SH</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCL 4528</td>
<td>Computers and Society</td>
<td>4</td>
</tr>
</tbody>
</table>

**CREATIVE INDUSTRIES ELECTIVES**
Complete four courses from the following lists. If the course has prerequisites, the student must complete those first unless permission is obtained in advance from the program office. If the course requires a corresponding lab or tools course, that course must be taken as well:

**Art + Design**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>SH</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 1111</td>
<td>Art + Design History since 1400</td>
<td>4</td>
</tr>
<tr>
<td>ARTH 2210</td>
<td>Art + Design History, 1900 to 1945</td>
<td>4</td>
</tr>
<tr>
<td>ARTH 2212</td>
<td>Survey of the Still and Moving Image</td>
<td>4</td>
</tr>
</tbody>
</table>

**Digital Art: Animation**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>SH</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTD 2370</td>
<td>Animation Basics</td>
<td>4</td>
</tr>
<tr>
<td>ARTD 2371</td>
<td>Animation Tools</td>
<td>1</td>
</tr>
<tr>
<td>ARTD 3470</td>
<td>Animation Studio 1</td>
<td>4</td>
</tr>
</tbody>
</table>

**Digital Art: Photography**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>SH</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTD 2360</td>
<td>Photo Basics</td>
<td>4</td>
</tr>
<tr>
<td>ARTD 2361</td>
<td>Photo Tools</td>
<td>1</td>
</tr>
<tr>
<td>ARTD 3460</td>
<td>Photography 1</td>
<td>4</td>
</tr>
</tbody>
</table>

**Computer Science**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>SH</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 3200</td>
<td>Database Design</td>
<td>4</td>
</tr>
<tr>
<td>CS 4100</td>
<td>Artificial Intelligence</td>
<td>4</td>
</tr>
<tr>
<td>CS 4400</td>
<td>Programming Languages</td>
<td>4</td>
</tr>
<tr>
<td>CS 4550</td>
<td>Web Development</td>
<td>4</td>
</tr>
<tr>
<td>CS 4800</td>
<td>Algorithms and Data</td>
<td>4</td>
</tr>
<tr>
<td>CS 4910</td>
<td>Computer Science Topics</td>
<td>4</td>
</tr>
<tr>
<td>CS 4992</td>
<td>Directed Study</td>
<td>4</td>
</tr>
<tr>
<td>CS 4993</td>
<td>Independent Study</td>
<td>4</td>
</tr>
</tbody>
</table>

**Psychology**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>SH</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 3452</td>
<td>Sensation and Perception</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 3464</td>
<td>Psychology of Language</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 3466</td>
<td>Cognition</td>
<td>4</td>
</tr>
</tbody>
</table>

**REQUIRED GENERAL ELECTIVES**
Complete three general electives. If the NU Core comparative study of cultures requirement is to be satisfied by taking a course, then it must be one of the general electives.

**MAJOR GPA REQUIREMENT**
Minimum 2.670 GPA required in all CS and IS courses

**NU CORE REQUIREMENTS**
See page 26 for requirement list.

**GENERAL ELECTIVES**
Additional courses taken beyond college and major course requirements to satisfy graduation credit requirements.

**COOPERATIVE EDUCATION**

**UNIVERSITY-WIDE REQUIREMENTS**
138 total semester hours required
Minimum 2.000 GPA required
BS in Computer Science and Mathematics

COMPUTER SCIENCE COURSES

Computer Science Overview
Freshmen or freshmen transfers complete the following two courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>SH</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 1200</td>
<td>Computer/Information Science Overview 1</td>
<td>1</td>
</tr>
<tr>
<td>CS 1210</td>
<td>Computer/Information Science Overview 2</td>
<td>1</td>
</tr>
</tbody>
</table>

Upper-level transfer students complete the following course:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>SH</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 1220</td>
<td>Computer/Information Science Co-op Preparation</td>
<td>1</td>
</tr>
</tbody>
</table>

Computer Science Fundamental Courses
Complete the following four courses with corresponding labs, as indicated. A grade of C– or higher is required in each course:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>SH</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 1800</td>
<td>Discrete Structures</td>
<td>4</td>
</tr>
<tr>
<td>CS 2500</td>
<td>Fundamentals of Computer Science 1</td>
<td>4</td>
</tr>
<tr>
<td>with CS 2501</td>
<td>Lab for CS 2500</td>
<td>1</td>
</tr>
<tr>
<td>CS 2510</td>
<td>Fundamentals of Computer Science 2</td>
<td>4</td>
</tr>
<tr>
<td>with CS 2511</td>
<td>Lab for CS 2510</td>
<td>1</td>
</tr>
<tr>
<td>CS 2800</td>
<td>Logic and Computation</td>
<td>4</td>
</tr>
<tr>
<td>with CS 2801</td>
<td>Lab for CS 2800</td>
<td>1</td>
</tr>
</tbody>
</table>

Computer Science Required Courses
Complete the following five courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>SH</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 3500</td>
<td>Object-Oriented Design</td>
<td>4</td>
</tr>
<tr>
<td>CS 3800</td>
<td>Theory of Computation</td>
<td>4</td>
</tr>
<tr>
<td>CS 4300</td>
<td>Computer Graphics</td>
<td>4</td>
</tr>
<tr>
<td>CS 4500</td>
<td>Software Development</td>
<td>4</td>
</tr>
<tr>
<td>CS 4800</td>
<td>Algorithms and Data</td>
<td>4</td>
</tr>
</tbody>
</table>

Computer Science Senior Seminar
Complete the following course:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>SH</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 4000</td>
<td>Senior Seminar</td>
<td>1</td>
</tr>
</tbody>
</table>

Computer Science Elective Courses
Complete two upper-division computer science courses. With advisor approval, directed study, project study, and appropriate graduate-level courses may also be taken as computer science electives:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>SH</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 2600</td>
<td>Computer Organization</td>
<td>4</td>
</tr>
<tr>
<td>CS 3200 to CS 4993</td>
<td>Lab for CS 3200</td>
<td>1</td>
</tr>
<tr>
<td>IS 4200</td>
<td>Information Retrieval</td>
<td>4</td>
</tr>
<tr>
<td>IS 4300</td>
<td>Human Computer Interaction</td>
<td>4</td>
</tr>
</tbody>
</table>

MATHEMATICS COURSES

Calculus Courses
Complete the following three courses with a grade of C– or higher in MATH 1341 and MATH 1342:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>SH</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 1341</td>
<td>Calculus 1 for Science and Engineering</td>
<td>4</td>
</tr>
<tr>
<td>MATH 1342</td>
<td>Calculus 2 for Science and Engineering</td>
<td>4</td>
</tr>
<tr>
<td>MATH 2321</td>
<td>Calculus 3 for Science and Engineering</td>
<td>4</td>
</tr>
</tbody>
</table>

Mathematics Courses
Complete the following five courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>SH</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 2331</td>
<td>Linear Algebra</td>
<td>4</td>
</tr>
<tr>
<td>MATH 2351</td>
<td>Ordinary Differential Equations</td>
<td>4</td>
</tr>
<tr>
<td>MATH 3081</td>
<td>Probability and Statistics</td>
<td>4</td>
</tr>
<tr>
<td>MATH 3175</td>
<td>Group Theory</td>
<td>4</td>
</tr>
<tr>
<td>MATH 3527</td>
<td>Number Theory</td>
<td>4</td>
</tr>
</tbody>
</table>

Co-op Seminar
Complete the following course after the first co-op is completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>SH</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 3000</td>
<td>Co-op and Experiential Learning</td>
<td>1</td>
</tr>
</tbody>
</table>

Mathematics Electives
Complete three upper-division mathematics courses from the following list. Note: MATH 4000 may not be used for this requirement:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>SH</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 3001 to MATH 4999</td>
<td>Lab for MATH 3001</td>
<td>1</td>
</tr>
</tbody>
</table>

COMPUTERS AND SOCIETY

Complete the following course:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>SH</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCL 4528</td>
<td>Computers and Society</td>
<td>4</td>
</tr>
</tbody>
</table>

REQUIRED GENERAL ELECTIVES
Complete seven general electives. One of these electives must be used to satisfy the NU Core arts/humanities level 1 requirement, and one must be used to satisfy the NU Core social science level 1 requirement. If the NU Core comparative study of cultures requirement is to be satisfied by taking a course, then it must also be one of the general electives.

MAJOR GPA REQUIREMENT
Minimum 2.000 GPA required in all CS and IS courses.

NU CORE REQUIREMENTS
See page 26 for requirement list.

GENERAL ELECTIVES
Additional courses taken beyond college and major course requirements to satisfy graduation credit requirements.

COOPERATIVE EDUCATION

UNIVERSITY-WIDE REQUIREMENTS
134 total semester hours required
Minimum 2.000 GPA required

BS in Computer Science and Music with Concentration in Music Technology

COMPUTER SCIENCE COURSES

Computer Science Overview
Freshmen or freshmen transfers complete the following two courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>SH</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 1200</td>
<td>Computer/Information Science Overview 1</td>
<td>1</td>
</tr>
<tr>
<td>CS 1210</td>
<td>Computer/Information Science Overview 2</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>SH</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 1200</td>
<td>Computer/Information Science Overview 2</td>
<td>1</td>
</tr>
</tbody>
</table>


Upper-level transfer students complete the following course:
CS 1220 Computer/Information Science Co-op 1 SH

**Computer Science Fundamental Courses**
Complete the following four courses with corresponding labs, as indicated. A grade of C– or higher is required in each course:
- CS 1800 Discrete Structures 4 SH
- CS 2500 Fundamentals of Computer Science 1 4 SH
  with CS 2501 Lab for CS 2500 1 SH
- CS 2510 Fundamentals of Computer Science 2 4 SH
  with CS 2511 Lab for CS 2510 1 SH
- CS 2800 Logic and Computation 4 SH
  with CS 2801 Lab for CS 2800 1 SH

**Computer Science Required Courses**
Complete the following four courses:
- CS 3200 Database Design 4 SH
- CS 3500 Object-Oriented Design 4 SH
- CS 3800 Theory of Computation 4 SH
- CS 4500 Software Development 4 SH

**Computer Science Senior Seminar**
Complete the following course:
- CS 4000 Senior Seminar 1 SH

**Computer Science Integrative Course**
Complete the following course:
- IS 4300 Human Computer Interaction 4 SH

**Computer Science Elective Courses**
Complete two upper-division computer science courses. With advisor approval, directed study, project study, and appropriate graduate-level courses may also be taken as computer science electives:
- CS 2600 Computer Organization 4 SH
- CS 3200 to CS 4993
- IS 4200 Information Retrieval 4 SH

**MUSIC TECHNOLOGY COURSES**

**Music Theory**
Complete the following two courses. Music Theory and Musicianship should be taken concurrently, as indicated:
- MUSC 1201 Music Theory 1 4 SH
  with MUSC 1241 Musicianship 1 1 SH
- MUSC 1202 Music Theory 2 4 SH
  with MUSC 1242 Musicianship 2 1 SH

**Music Literature and History**
Complete the following two courses. Note: MUSC 2308 is a prerequisite to MUST 2315:
- MUSC 2308 Principles of Music Literature 4 SH
- MUST 2315 History of Electronic Music 4 SH

**Music Technology**
Complete the following four courses in the order indicated:
- MUST 1220 Music and Technology 1 4 SH
- MUST 1221 Music and Technology 2 4 SH
- MUST 3422 Music Composition Seminar 2 4 SH
- MUST 4520 Interactive Real-Time Performance 4 SH

**Electronic Composition and Performance**
Complete the following two courses in the order indicated:
- MUST 4610 Composition for Electronic Instruments 4 SH
- MUST 4611 Music Technology Capstone/Senior Recital 4 SH

**Music Technology Integrative Course**
Complete the following course:
- MUST 3421 Digital Audio Processing 4 SH

**Music Lessons**
Complete the following (repeatable) course four times:
- MUSC 1903 Composition Lessons 1 SH

**Music Elective Requirements**
Complete two additional courses from the following list with corresponding musicianship courses, as indicated. Note:
- MUSC 2303 is a prerequisite for MUSC 2304; MUSC 2308 is a prerequisite for MUSC 2311, MUSC 2312, and MUSC 2313:
  - IDSC 4699 Advanced Television Production 4 SH
  - MMST 3350 Programming for Multimedia 4 SH
  - MUSC 2303 Music Theory 3 4 SH
    with MUSC 2343 Musicianship 3 1 SH
  - MUSC 2304 Music Theory 4 4 SH
    with MUSC 2344 Musicianship 4 1 SH
  - MUSC 2311 Historical Traditions 1: America 4 SH
  - MUSC 2312 Historical Traditions 2: Classical 4 SH
  - MUSC 2313 Historical Traditions 3: World 4 SH
  - MUSI 2233 Music Production for Radio and Web 4 SH
  - MUST 2320 Sound Design 4 SH

**GENERAL REQUIREMENTS**

**Foundations of Psychology**
Complete the following course:
- PSYC 1101 Foundations of Psychology 4 SH

**Computers and Society**
Complete the following course:
- SOCL 4528 Computers and Society 4 SH

**REQUIRED GENERAL ELECTIVES**
Complete four general electives. If the NU Core comparative study of cultures requirement is to be satisfied by taking a course, then it must be one of the general electives.

**MAJOR GPA REQUIREMENT**
Minimum 2.000 GPA required in all CS and IS courses

**NU CORE REQUIREMENTS**
See page 26 for requirement list.

**GENERAL ELECTIVES**
Additional courses taken beyond college and major course requirements to satisfy graduation credit requirements.

**COOPERATIVE EDUCATION**

**UNIVERSITY-WIDE REQUIREMENTS**
139 total semester hours required
Minimum 2.000 GPA required
BS in Computer Science and Physics

COMPUTER SCIENCE COURSES

Computer Science Overview
Freshmen or freshmen transfers complete the following two courses:
- CS 1200 Computer/Information Science Overview 1
  1 SH
- CS 1210 Computer/Information Science Overview 2
  1 SH

Upper-level transfer students complete the following course:
- CS 1220 Computer/Information Science Co-op Preparation
  1 SH

Computer Science Fundamental Courses
Complete the following four courses with corresponding labs, as indicated. A grade of C– or higher is required in each course:
- CS 1800 Discrete Structures
  4 SH
- CS 2500 Fundamentals of Computer Science 1
  4 SH
  with CS 2501 Lab for CS 2500
  1 SH
- CS 2510 Fundamentals of Computer Science 2
  4 SH
  with CS 2511 Lab for CS 2510
  1 SH
- CS 2800 Logic and Computation
  4 SH
  with CS 2801 Lab for CS 2800
  1 SH

Computer Science Required Courses
Complete the following four courses:
- CS 3500 Object-Oriented Design
  4 SH
- CS 3800 Theory of Computation
  4 SH
- CS 4500 Software Development
  4 SH
- CS 4800 Algorithms and Data
  4 SH

Computer Science Senior Seminar
Complete the following course:
- CS 4000 Senior Seminar
  1 SH

Computer Science Elective Course
Complete one upper-division computer science course. Either this course or one physics elective must satisfy the NU Core capstone requirement. With advisor approval, a directed study, project study, or appropriate graduate-level course may also be taken as a computer science elective:
- CS 2600 Computer Organization
  4 SH
- CS 3200 to CS 4993
- IS 4200 Information Retrieval
  4 SH
- IS 4300 Human Computer Interaction
  4 SH

PHYSICS COURSES

Required Courses
Complete the following two courses with corresponding labs:
- PHYS 1161 Physics 1
  4 SH
  with PHYS 1162 Lab for PHYS 1161
  1 SH
- PHYS 1165 Physics 2
  4 SH
  with PHYS 1166 Lab for PHYS 1165
  1 SH

Intermediate Physics
Complete the following three courses:
- PHYS 2303 Modern Physics
  4 SH
- PHYS 2305 Thermodynamics and Statistical Mechanics
- PHYS 2371 Electronics
  4 SH

Advanced Physics
Complete the following two courses:
- PHYS 3600 Advanced Physics Laboratory 1
  4 SH
- PHYS 3602 Electricity and Magnetism
  4 SH

Physics Elective
Complete two upper-division courses from the physics department. One of these courses or one computer science elective must satisfy the NU Core capstone requirement:
- PHYS 2990 to PHYS 9999

MATHEMATICS INTEGRATIVE COURSES

Calculus
Complete the following three courses with a grade of C– or higher in MATH 1341 and MATH 1342:
- MATH 1341 Calculus 1 for Science and Engineering
  4 SH
- MATH 1342 Calculus 2 for Science and Engineering
  4 SH
- MATH 2321 Calculus 3 for Science and Engineering
  4 SH

Additional Math Requirements
Complete the following two courses:
- MATH 2351 Ordinary Differential Equations
  4 SH
- MATH 4525 Applied Analysis
  4 SH

COMPUTERS AND SOCIETY
Complete the following course:
- SOCL 4528 Computers and Society
  4 SH

REQUIRED GENERAL ELECTIVES
Complete six general electives. One of these electives must be used to satisfy the NU Core arts/humanities level 1 requirement and one must be used to satisfy the NU Core social science level 1 requirement. If the NU Core comparative study of cultures requirement is to be satisfied by taking a course, then it must also be one of the general electives.

MAJOR GPA REQUIREMENT
Minimum 2.000 GPA required in all CS and IS courses

NU CORE REQUIREMENTS
See page 26 for requirement list.

GENERAL ELECTIVES
Additional courses taken beyond college and major course requirements to satisfy graduation credit requirements.
COOPERATIVE EDUCATION

UNIVERSITY-WIDE REQUIREMENTS
135 total semester hours required
Minimum 2.000 GPA required

BS in Information Science and Business Administration

COMPUTER SCIENCE COURSES

Computer Science Overview
Freshmen or freshmen transfers complete the following two courses:
CS 1200 Computer/Information Science 1 SH
CS 1210 Computer/Information Science 1 SH

Upper-level transfer students complete the following course:
CS 1220 Computer/Information Science Co-op Preparation 1 SH

Computer Science Fundamental Courses
Complete the following four courses with corresponding labs, as indicated. A grade of C– or higher is required in each course:
CS 1800 Discrete Structures 4 SH
CS 2500 Fundamentals of Computer Science 1 4 SH
with CS 2501 Lab for CS 2500 1 SH
CS 2510 Fundamentals of Computer Science 2 4 SH
with CS 2511 Lab for CS 2510 1 SH
CS 2800 Logic and Computation 4 SH
with CS 2801 Lab for CS 2800 1 SH

Computer Science Required Courses
Complete the following two courses:
CS 3200 Database Design 4 SH
CS 3500 Object-Oriented Design 4 SH

Computer Science Senior Seminar
Complete the following course:
CS 4000 Senior Seminar 1 SH

Information Science Required Courses
Complete the following three courses:
IS 2000 Principles of Information Science 4 SH
IS 3500 Information System Design and Development 4 SH
IS 4800 Empirical Research Methods 4 SH

Integrative Courses
Complete the following two courses:
MISM 3305 Information Resource Management 4 SH
MISM 3404 Business Data Communications 4 SH

Upper-Division IS Elective
Complete one upper-division IS elective. With advisor approval, a directed study, project study, or appropriate graduate-level course may also be taken as an information science elective:
CS 3600 to CS 4993
IS 2990 to IS 4993

BUSINESS COURSES

Required Business Courses
Complete the following seven courses:
ACCT 1201 Financial Accounting and Reporting 4 SH
ACCT 2301 Managerial Accounting 4 SH
FINA 2201 Financial Management 4 SH
MGSC 1201 Business Statistics 4 SH
MKTG 2201 Introduction to Marketing 4 SH
ORGB 3201 Organizational Behavior 4 SH
STRT 4501 Strategy in Action 4 SH

BUSINESS CONCENTRATION
Complete a four-course business concentration from the list below:

Concentration in Accounting

ACCOUNTING REQUIRED COURSES
Complete the following two courses:
ACCT 3401 Financial Reporting and Analysis 1 4 SH
ACCT 4501 Financial Reporting and Analysis 2 4 SH

ACCOUNTING ELECTIVE COURSES
Complete two courses from the following list:
ACCT 3403 Accounting Information Systems 4 SH
ACCT 3416 Strategic Cost Analysis for Decision Making 4 SH
ACCT 4412 Auditing and Other Assurance Services 4 SH
ACCT 4414 Income Tax Determination and Planning 4 SH

Concentration in Entrepreneurship and Innovation
Complete the following four courses:
ENTR 2201 The Entrepreneurial Universe 4 SH
ENTR 3301 Opportunity Assessment and Entrepreneurship Marketing 4 SH
ENTR 3401 Small Business Management, Operations, and Growth 4 SH
ENTR 4501 Venture Creation and Entrepreneurial Finance 4 SH
or ENTR 4503 Small Business Service and Retail Creation 4 SH

Concentration in Finance

FINANCE REQUIRED COURSES
Complete the following two courses:
FINA 3301 Corporate Finance 4 SH
FINA 3303 Investments 4 SH

FINANCE ELECTIVE COURSES
Complete two additional FINA courses.

Concentration in Management

MANAGEMENT REQUIRED COURSE
Complete the following course:
MGMT 3303 Building Your Management Skills 4 SH

MANAGEMENT ELECTIVE COURSES
Complete three additional MGMT courses.
Concentration in Marketing

MARKETING REQUIRED COURSES
Complete the following two courses:
MKTG 3301 Marketing Management 4 SH
MKTG 3401 Marketing Research 4 SH

MARKETING ELECTIVE COURSES
Complete two additional MKTG courses.

Concentration in Supply Chain Management

Complete the following four courses:
SCHM 2201 Supply Chain Management 4 SH
SCHM 3301 Global Supply Chain Management 4 SH
SCHM 3310 The Transportation Industries 4 SH
SCHM 4401 Advanced Problems in Supply Chain Management 4 SH

MATHEMATICS AND GENERAL REQUIREMENTS

Mathematics
Complete one of the following courses:
MATH 1231 Calculus for Business and Economics 4 SH
MATH 1341 Calculus 1 for Science and Engineering 4 SH

Economics
Complete the following two courses:
ECON 1115 Principles of Macroeconomics 4 SH
ECON 1116 Principles of Microeconomics 4 SH

Computers and Society
Complete the following course:
SOCL 4528 Computers and Society 4 SH

REQUIRED GENERAL ELECTIVES
Complete three general electives. One of these electives must be used to satisfy the NU Core arts/humanities level 1 requirement. If the NU Core comparative study of cultures requirement is to be satisfied by taking a course, then it must also be one of the general electives. Note: Computer science/business administration and information science/business administration dual majors may satisfy the latter requirement by completing the following course:
INTB 1203 International Business and Global Social Responsibility 4 SH

MAJOR GPA REQUIREMENT
Minimum 2.000 GPA required in all CS and IS courses

NU CORE REQUIREMENTS
See page 26 for requirement list.

GENERAL ELECTIVES
Additional courses taken beyond college and major course requirements to satisfy graduation credit requirements.

COOPERATIVE EDUCATION

UNIVERSITY-WIDE REQUIREMENTS
133 total semester hours required
Minimum 2.000 GPA required

BS in Information Science and Cognitive Psychology

COMPUTER AND INFORMATION SCIENCE COURSES

Computer Science Overview
Freshmen or freshmen transfers complete the following two courses:
CS 1200 Computer/Information Science 1 SH
Overview 1
CS 1210 Computer/Information Science 1 SH
Overview 2

Upper-level transfer students complete the following course:
CS 1220 Computer/Information Science Co-op Preparation 1 SH

Computer Science Fundamental Courses
Complete the following four courses with corresponding labs, as indicated. A grade of C- or higher is required in each course:
CS 1800 Discrete Structures 4 SH
CS 2500 Fundamentals of Computer Science 4 SH
with CS 2501 Lab for CS 2500 1 SH
CS 2510 Fundamentals of Computer Science 2 4 SH
with CS 2511 Lab for CS 2510 1 SH
CS 2800 Logic and Computation 4 SH
with CS 2801 Lab for CS 2800 1 SH

Computer Science Required Courses
Complete the following three courses. Note: CS 4100 is an integrative course:
CS 3500 Object-Oriented Design 4 SH
CS 3800 Theory of Computation 4 SH
CS 4100 Artificial Intelligence 4 SH

Information Science
Complete the following five courses, including senior project. Note: IS 4300 and IS 4900 are integrative courses:
IS 2000 Principles of Information Science 4 SH
IS 3500 Information System Design and Development 4 SH
IS 4300 Human Computer Interaction 4 SH
IS 4800 Empirical Research Methods 4 SH
IS 4900 Information Science Senior Project 5 SH

PSYCHOLOGY COURSES

Required Courses
Complete the following four courses:
PSYC 1101 Foundations of Psychology 4 SH
PSYC 2320 Statistics in Psychological Research 4 SH
PSYC 3464 Psychology of Language 4 SH
PSYC 3466 Cognition 4 SH

Advanced Psychology
Complete one course from the following list:
PSYC 3452 Sensation and Perception 4 SH
PSYC 3458 Psychobiology 4 SH
Laboratory in Psychology
Complete one course from the following list:
- PSYC 4610 Laboratory in Psycholinguistics 4 SH
- PSYC 4612 Laboratory in Cognition 4 SH
- PSYC 4622 Laboratory in Sensation and Perception 4 SH

Seminar in Psychology
Complete one course from the following list:
- PSYC 4658 Seminar in Psycholinguistics 4 SH
- PSYC 4660 Seminar in Cognition 4 SH
- PSYC 4668 Seminar in Sensation and Perception 4 SH

Psychology Electives
Complete two courses from the following list: Note: Courses satisfying the categories above cannot be reused:
- PSYC 3402 Social Psychology 4 SH
- PSYC 3450 Learning and Motivation 4 SH
- PSYC 3452 Sensation and Perception 4 SH
- PSYC 3458 Psychobiology 4 SH
- PSYC 3526 Categorization and Reasoning 4 SH
- PSYC 4520 Language and the Brain 4 SH
- PSYC 4522 Psychology of Reading 4 SH
- PSYC 4524 Cognitive Development 4 SH
- PSYC 4610 Laboratory in Psycholinguistics 4 SH
- PSYC 4612 Laboratory in Cognition 4 SH
- PSYC 4622 Laboratory in Sensation and Perception 4 SH
- PSYC 4652 Seminar in Ethics in Psychology 4 SH
- PSYC 4658 Seminar in Psycholinguistics 4 SH
- PSYC 4660 Seminar in Cognition 4 SH
- PSYC 4668 Seminar in Sensation and Perception 4 SH
- PSYC 4970 Junior/Senior Honors Project 1 4 SH
  with PSYC 4971 Junior/Senior Honors Project 2 4 SH

ADDITIONAL REQUIREMENTS
Calculus
Complete the following course:
- MATH 1341 Calculus 1 for Science and Engineering 4 SH

Computers and Society
Complete the following course:
- SOCL 4528 Computers and Society 4 SH

REQUIRED GENERAL ELECTIVES
Complete seven general electives. One of these electives must be used to satisfy the NU Core arts/humanities level 1 requirement. If the NU Core comparative study of cultures requirement is to be satisfied by taking a course, then it must also be one of the general electives.

MAJOR GPA REQUIREMENT
Minimum 2.000 GPA required in all CS and IS courses.

NU CORE REQUIREMENTS
See page 26 for requirement list.

GENERAL ELECTIVES
Additional courses taken beyond college and major course requirements to satisfy graduation credit requirements.

COOPERATIVE EDUCATION

UNIVERSITY-WIDE REQUIREMENTS
133 total semester hours required
Minimum 2.000 GPA required

BS in Information Science and Environmental Science

COMPUTER SCIENCE COURSES

Computer Science Overview
Freshmen or freshmen transfers complete the following two courses:
- CS 1200 Computer/Information Science Overview 1 1 SH
- CS 1210 Computer/Information Science Overview 2 1 SH

Upper-level transfer students complete the following course:
- CS 1220 Computer/Information Science Co-op Preparation 1 SH

Computer Science Fundamental Courses
Complete the following four courses with corresponding labs, as indicated:
- CS 1800 Discrete Structures 4 SH
- CS 2500 Fundamentals of Computer Science 1 4 SH
- CS 2800 Logic and Computation 4 SH

Computer Science Required Courses
Complete the following two courses:
- CS 3200 Database Design 4 SH
- CS 3500 Object-Oriented Design 4 SH

Information Science Required Courses
Complete the following three courses:
- IS 2000 Principles of Information Science 4 SH
- IS 3500 Information System Design and Development 4 SH
- IS 4800 Empirical Research Methods 4 SH

Upper-Division IS Elective
Complete one upper-division IS elective. With advisor approval, a directed study, project study, or appropriate graduate-level course may also be taken as an information science elective:
- IS 4000 to IS 4999

ENVIRONMENTAL SCIENCE COURSES

Required Environmental Science Courses
Complete the following four courses with corresponding labs, as indicated:
ENVR 1101 Environmental Science 4 SH
ENVR 1200 Dynamic Earth 4 SH
with ENVR 1201 Lab for ENVR 1200 1 SH
ENVR 4900 Earth and Environmental Science Capstone 1 SH
ENVR 5210 Environmental Planning 4 SH
or ENVR 5250 Geology and Land-Use Planning 4 SH

**Integrative Course**
Complete the following course:
ENVR 3300 Geographic Information Systems 4 SH

**Environmental Science Electives**
Complete three courses from the following list with corresponding labs, as indicated:
ENVR 1202 History of Earth and Life 4 SH
with ENVR 1203 Interpreting Earth History 1 SH
ENVR 3302 Introduction to Remote Sensing 4 SH
with ENVR 3303 Lab for ENVR 3302 1 SH
ENVR 3400 Field Geology 4 SH
ENVR 3410 Environmental Geochemistry 4 SH
ENVR 3418 Geophysics 4 SH
ENVR 4106 Coastal Processes 4 SH
with ENVR 4107 Lab for ENVR 4106 1 SH
ENVR 4500 Applied Hydrogeology 4 SH
with ENVR 4501 Lab for ENVR 4500 1 SH
ENVR 4504 Environmental Pollution 4 SH
ENVR 4505 Wetlands 4 SH
ENVR 5201 Geologic Field Seminar 4 SH
ENVR 5210 Environmental Planning 4 SH
ENVR 5242 Ancient Marine Life 4 SH
with ENVR 5243 Lab for ENVR 5242 1 SH
ENVR 5250 Geology and Land-Use Planning 4 SH

**Sustainability Focus Courses**
Complete the following course:
PHIL 1180 Environmental Ethics 4 SH
and two additional courses from the following list:
ECON 3423 Environmental Economics 4 SH
ENVR 4515 Sustainable Development 4 SH
HIST 3412 Global Environmental History 4 SH
INTL 4937 Dialogue of Civilizations: Science and Technology 4 SH
POL S 2390 Science, Technology, and Public Policy 4 SH
POL S 2395 Environmental Politics 4 SH
SOCL 1246 Environment and Sociology 4 SH

**ADDITIONAL REQUIREMENTS**

**Mathematics and Statistics**
Complete the following two courses:
ECON 2350 Statistics 4 SH
MATH 1251 Calculus and Differential Equations for Biology 1 4 SH
or MATH 1341 Calculus 1 for Science and Engineering 4 SH

**Chemistry**
Complete one of the following courses with corresponding lab:
CHEM 1151 General Chemistry for Engineers 4 SH
with CHEM 1152 Lab for CHEM 1151 1 SH
CHEM 1211 General Chemistry 1 4 SH
with CHEM 1212 Lab for CHEM 1211 1 SH

**General Requirements**
Complete the following two courses:
ECON 1116 Principles of Microeconomics 4 SH
SOCL 4528 Computers and Society 4 SH

**REQUIRED GENERAL ELECTIVES**
Complete five general electives. If the NU Core comparative study of cultures requirement is to be satisfied by taking a course, then it must be one of the general electives.

**NU CORE REQUIREMENTS**
See page 26 for requirement list.

**GENERAL ELECTIVES**
Additional courses taken beyond college and major course requirements to satisfy graduation credit requirements.

**COOPERATIVE EDUCATION**

**UNIVERSITY-WIDE REQUIREMENTS**
139 total semester hours required
Minimum 2.000 GPA required

NORTHEASTERN UNIVERSITY