

Computer Science and Music, BS

The computer science and music combined major exposes students to a wide range of musical repertoires, theoretical approaches, and research strategies. The program engages students in the study of how music works and the many contexts in which it is created and received. Students will be exposed to the fundamentals of program design and software development. It is designed to give students a firm foundation in music and computing.

Program Requirements

- Concentrations and course offerings may vary by campus and/or by program modality. Please consult with your advisor or admissions coach for the course availability each term at your campus or within your program modality.
- Certain options within the program may be *required* at certain campuses or for certain program modalities. Please consult with your advisor or admissions coach for requirements at your campus or for your program modality.

Complete all courses listed below unless otherwise indicated. Also complete any corequisite labs, recitations, clinicals, or tools courses where specified and complete any additional courses needed beyond specific college and major requirements to satisfy graduation credit requirements.

Universitywide Requirements

All undergraduate students are required to complete the Universitywide Requirements (<https://catalog.northeastern.edu/undergraduate/university-academics/university-wide-requirements/>).

NUpath Requirements

All undergraduate students are required to complete the NUpath Requirements (<https://catalog.northeastern.edu/undergraduate/university-academics/nupath/>).

Computer Science Courses

| Code | Title | Hours |
|---|---|-------|
| Computer Science Overview | | |
| Must be taken in alignment with your home college: | | |
| CS 1200 or MUSC 1000 | First Year Seminar Music at Northeastern | 1 |
| CS 1210 or EEAM 2000 | Professional Development for Khoury Co-op Professional Development for Co-op | 1 |
| Computer Science Fundamental Courses | | |
| CS 1800 and CS 1802 | Discrete Structures and Seminar for CS 1800 | 5 |
| CS 2500 and CS 2501 | Fundamentals of Computer Science 1 and Lab for CS 2500 | 5 |
| CS 2510 and CS 2511 | Fundamentals of Computer Science 2 and Lab for CS 2510 | 5 |
| Computer Science Required Courses | | |
| CS 3000 | Algorithms and Data | 4 |
| CS 3200 | Introduction to Databases | 4 |
| CS 3500 and CS 3501 | Object-Oriented Design and Lab for CS 3500 | 5 |
| CS 4500 or CS 4530 | Software Development Fundamentals of Software Engineering | 4 |
| Khoury Electives | | |
| With advisor approval, directed study, research, project study, and appropriate graduate-level courses may also be taken as upper-division electives. | | |
| Complete 8 credits of CS, CY, DS, or IS classes that are not already required. Choose courses within the following ranges: | | 8 |
| CS 2500 or higher, except CS 5010 | | |
| CY 2000 or higher, except CY 4930 | | |

DS 2500 or higher, except DS 4900

IS 2000 or higher, except IS 4900

Music Courses

| Code | Title | Hours |
|---|---|-------|
| Music Theory Placement | | |
| All students must take a music placement exam. Students who place into MUSC 1201 will substitute a general elective course for the following course: | | |
| MUSC 1119 | Fundamentals of Western Music Theory | 4 |
| Music Theory | | |
| MUSC 1201 | Music Theory 1 | 4 |
| <i>Music Theory Elective</i> | | |
| Complete one of the following: | | |
| MUSC 1202 | Music Theory 2 | |
| MUSC 2111 | Algebra and Geometry of Music | |
| MUSC 2208 | Jazz Improvisation | |
| MUSC 2350 | Acoustics and Psychoacoustics of Music | |
| MUSC 3300 | Music Perception and Cognition (Music Perception and Cognition) | |
| MUSI 1204 | Analyzing Popular Genres | |
| Music in Context | | |
| MUSC 1001 or MUSC 1002 and MUSC 1003 | Music in Everyday Life Music in Everyday Life and Lab for MUSC 1002 | 4 |
| Complete one course each from three of the four distinct Music in Context categories. No more than one may be at the 1000 level. At least one course must be at the 3000 level or higher. | | |
| <i>Western Art Music</i> | | |
| Complete one of the following: | | |
| MUSC 1100 | Topics in Western Music | |
| MUSC 2105 | Songs That Made History | |
| MUSC 2312 | Topics in Western Art Music | |
| MUSC 2320 | 40,000 Years of Music Technology | |
| MUSC 2340 | Divas, DJs, and Double Standards | |
| MUSC 2380 | The World of Choral Music | |
| MUSC 3352 | Sounding Human | |
| <i>Global Music/Ethnomusicology</i> | | |
| Complete one of the following: | | |
| MUSC 1129 | Music of the Middle East | |
| MUSC 1137 | Topics in Diverse Musical Cultures | |
| MUSC 2101 | Black Popular Music | |
| MUSC 2313 | Topics in Global Music Cultures | |
| MUSC 2330 | Musical Communities of Boston | |
| MUSC 2331 | Topics in Musical Communities | |
| MUSC 3353 | Music and the Racial Imagination | |
| MUSC 3354 | Sound and the Sacred | |
| MUSC 3355 | Music, Noise, Silence | |
| MUSC 3360 | Ethnography and the Arts | |
| MUSI 3351 | Music and Social Justice | |
| MUSI 3360 | Global Music Industries in Context | |
| MUSI 3401 | Hip Hop in the Music Industry | |
| <i>Contemporary/Popular Music</i> | | |
| Complete one of the following: | | |
| MUSC 1112 | Jazz | |
| MUSC 1113 | Film Music | |
| MUSC 1141 | Wired for Sound | |

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|-----------|---|
| MUSC 2101 | Black Popular Music |
| MUSC 2150 | Making a Musical: Analysis, Craft, and Creation |
| MUSC 2310 | Popular Music Since 1945 |
| MUSC 2311 | Topics in American Music |
| MUSC 2317 | Punk Rock |
| MUSC 2320 | 40,000 Years of Music Technology |
| MUSC 2336 | The Festival Experience |
| MUSC 2340 | Divas, DJs, and Double Standards |
| MUSC 2351 | Music, Sound, and the Screen |
| MUSC 2380 | The World of Choral Music |
| MUSC 3352 | Sounding Human |
| MUSC 3353 | Music and the Racial Imagination |
| MUSC 3354 | Sound and the Sacred |
| MUSC 3360 | Ethnography and the Arts |
| MUSI 3360 | Global Music Industries in Context |
| MUSI 3401 | Hip Hop in the Music Industry |

Creative

Complete one of the following 4-semester-hour courses or complete four 1-semester-hour ensembles and/or lessons from the list below:

| | |
|-----------|---|
| MUSC 1901 | Music Lessons 1 |
| MUSC 1902 | Music Lessons 2 |
| MUSC 1904 | Chorus |
| MUSC 1905 | Concert Band |
| MUSC 1906 | Orchestra |
| MUSC 1907 | Wind Ensemble |
| MUSC 1911 | Jazz Ensemble |
| MUSC 1912 | Rock Ensemble |
| MUSC 1913 | Blues/Rock Ensemble |
| MUSC 1914 | Create Your Own Music |
| MUSC 1915 | Chamber Ensemble |
| MUSC 1917 | Jazz Choir and Combo |
| MUSC 1918 | World Music Ensemble |
| MUSC 1919 | Fusion Ensemble |
| MUSC 1920 | Pep Band |
| MUSC 2150 | Making a Musical: Analysis, Craft, and Creation |
| MUSC 2208 | Jazz Improvisation |
| MUSC 2209 | Conducting |
| MUSC 2210 | Introduction to Songwriting |
| MUST 1220 | Introduction to Music Technology |
| MUST 1301 | Introduction to Composition |
| MUST 2320 | Sound Design |

Music Electives

Complete two additional courses in music (MUSC, MUSI, or MUST). At least one must be at the 2000 level or higher.

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Music Capstone

Complete one of the following:

4

| | |
|-----------|--|
| MUSC 4651 | Music Research Capstone |
| MUSI 4601 | Seminar in Music Industry (available as long as prerequisites have been met) |
| MUST 4611 | Music Technology Capstone (available as long as prerequisites have been met) |

If a computer science capstone is taken, complete one additional course in music (MUSC, MUSI, or MUST) at the 2000 level or higher.

Integrative Course

| Code | Title | Hours |
|--------------------------------|----------------------------------|-------|
| Complete one of the following: | | 4 |
| IS 4300 | Human Computer Interaction | |
| MUSC 2320 | 40,000 Years of Music Technology | |
| MUSC 3352 | Sounding Human | |
| MUST 2431 | Computer Music Fundamentals | |

Supporting Courses

| Code | Title | Hours |
|------------------------------------|---|-------|
| Psychology Requirement | | |
| PSYC 1101 | Foundations of Psychology | 4 |
| Mathematics Requirement | | |
| MATH 1341 | Calculus 1 for Science and Engineering | 4 |
| Computing and Social Issues | | |
| Complete one of the following: | | 4 |
| AFCS 2600 | Issues in Race, Science, and Technology | |
| CY 4170 | The Law, Ethics, and Policy of Data and Digital Technologies | |
| CY 5240 | Cyberlaw: Privacy, Ethics, and Digital Rights | |
| HIST 2220 | History of Technology | |
| INSH 2102 | Bostonography: The City through Data, Texts, Maps, and Networks | |
| IS 1300 or PHIL 1300 | Knowledge in a Digital World | |
| PHIL 1145 | Technology and Human Values | |
| SOCL 1280 | The Twenty-First-Century Workplace | |
| SOCL 2485 | Environment, Technology, and Society | |
| SOCL 4528 | Technology and Society | |

Writing Requirement

| Code | Title | Hours |
|--|---|-------|
| College Writing | | |
| ENGW 1111 | First-Year Writing | 4 |
| Advanced Writing in the Disciplines | | |
| ENGW 3302 or ENGW 3314 or ENGW 3315 | Advanced Writing in the Technical Professions Advanced Writing in the Arts, Media, and Design Interdisciplinary Advanced Writing in the Disciplines | 4 |

Required General Electives

| Code | Title | Hours |
|--|-------|-------|
| Complete 24 semester hours of general electives. | | 24 |

NUpath Requirements Satisfied

- Engaging with the Natural and Designed World
- Conducting Formal and Quantitative Reasoning
- Understanding Societies and Institutions
- Analyzing and Using Data
- Writing in the First Year
- Advanced Writing in the Disciplines
- Writing-Intensive in the Major
- Demonstrating Thought and Action in a Capstone

Integrating Knowledge and Skills Through Experience is satisfied through co-op.

Khoury College GPA Requirement

Minimum 2.000 GPA required in all CS, CY, DS, and IS courses

Music Major Grade Requirement

Students must maintain at least a 2.667 GPA (B– average) in the requirements of the music half of the combined major and also complete all required music courses with grades of at least C. Students who fail to meet the above standards will be placed on departmental probation; those who remain on probation for two consecutive semesters will be dropped from the major.

Program Requirement

129 total semester hours required

Plan of Study

Sample Plan of Study: Four Years, Two Co-ops in Spring/Summer 1

| Year 1 | | | | | | | | |
|-----------------------------|-------|----------------------------------|-------|--------------------------|-------|----------------------------|-------|----------|
| Fall | Hours | Spring | Hours | Summer 1 | Hours | Summer 2 | Hours | Hours |
| CS 1200 or MUSC 1000 | | 1 CS 2510 and CS 2511 | | 5 CS 3200 | | 4 Elective | | 4 |
| CS 1800 and CS 1802 | | 5 MUSC 1002 and MUSC 1003 | | 4 CS 3500 and CS 3501 | | 5 | | |
| CS 2500 and CS 2501 | | 5 MATH 1341 | | 4 | | | | |
| ENGW 1111 | | 4 Music theory elective | | 4 | | | | |
| MUSC 1201 ¹ | | 4 | | | | | | |
| | | 19 | | 17 | | 9 | | 4 |
| Year 2 | | | | | | | | |
| Fall | Hours | Spring | Hours | Summer 1 | Hours | Summer 2 | Hours | Hours |
| CS 1210 or EEAM 2000 | | 1 Co-op | | 0 Co-op | | 0 PSYC 1101 | | 4 |
| CS 3000 | | 4 | | | | Elective | | 4 |
| Music in context elective 1 | | 4 | | | | | | |
| Music in context elective 2 | | 4 | | | | | | |
| Elective | | 4 | | | | | | |
| | | 17 | | 0 | | 0 | | 8 |
| Year 3 | | | | | | | | |
| Fall | Hours | Spring | Hours | Summer 1 | Hours | Summer 2 | Hours | Hours |
| IS 4300 | | 4 Co-op | | 0 Co-op | | 0 ENGW 3302, 3314, or 3315 | | 4 |
| Music in context elective 3 | | 4 | | | | Elective | | 4 |
| Khoury elective 1 | | 4 | | | | | | |
| Elective | | 4 | | | | | | |
| | | 16 | | 0 | | 0 | | 8 |
| Year 4 | | | | | | | | |
| Fall | Hours | Spring | Hours | Hours | Hours | Hours | Hours | Hours |
| CS 4500 or 4530 | | 4 MUSC 4651 | | 4 | | | | |
| Khoury elective 2 | | 4 Computing and social issues | | 4 | | | | |
| Music elective 1 | | 4 Music elective 2 | | 4 | | | | |
| Elective | | 4 Elective | | 4 | | | | |
| | | 16 | | 16 | | | | |

Total Hours: 130

¹ Indicates course must be taken in the term listed.