

Computer Science and Music with Concentration in Music Technology, BS (Boston)

The computer science and music combined major with concentration in music technology focuses on the creative application of sound and music technologies to a broad range of artistic, social, and industrial purposes. An emphasis is maintained throughout on imaginative exploration, collaboration across disciplines, and real-world experience. It is designed to give students a firm foundation in music and computing for digital audio technologies. This program is recommended for students with a strong background in music prior to entering Northeastern.

Program Requirements

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		
All students can take a self-assessment to attempt to place out of CS 2000 and CS 2001. Students who place out of CS 2000 and CS 2001 will instead substitute 4-5 semester hours of CS, CY, or DS coursework at the 3000 level or higher not otherwise required in the degree.		
CS 1800 and CS 1802	Discrete Structures and Seminar for CS 1800	5
CS 2000 and CS 2001	Introduction to Program Design and Implementation and Lab for CS 2000	5
CS 2100 and CS 2101	Program Design and Implementation 1 and Lab for CS 2100	5
Computer Science Required Courses		
CS 2484	Principles of Human-Computer Interaction	4
CS 3000	Algorithms and Data	4
CS 3100 and CS 3101	Program Design and Implementation 2 and Lab for CS 3100	5
CS 3200	Introduction to Databases	4
CS 4530 or CS 4535	Fundamentals of Software Engineering Professional Practicum Capstone	4
Khoury Approved Electives		
With advisor approval, directed study, research, project study, and appropriate graduate-level courses may also be taken as upper-division electives.		
Complete 8 semester hours from within the following options:		8
CS 2500 or higher, except CS 5010		
CY 2000 or higher, except CY 4930		
DS 2500 or higher, except DS 4900		
MKTG 4606	Digital, Analytics, Technology, and Automation Research Practicum	

Music Courses

Code	Title	Hours
Music Theory Placement		
All students can take a music theory placement exam to place out of MUSC 1119. Students who place out of MUSC 1119 will substitute it with a general elective course.		
MUSC 1119	Fundamentals of Western Music Theory	4
Music Theory and Composition		
MUSC 1201	Music Theory 1	4
MUSC 1202	Music Theory 2	4
Complete one of the following:		4
MUSC 2111	Algebra and Geometry of Music	
MUSC 2420	Music Composition Seminar 1	
MUSC 2425	Arranging and Orchestration for Film, Media, and the Concert Stage	
MUSC 3300	Music Perception and Cognition (Music Perception and Cognition)	
MUSC 3541	Music Analysis Seminar	
Music in Context		
Select one of the following for four semester hours:		4
MUSC 1001	Music in Everyday Life	
MUSC 1002 and MUSC 1003	Music in Everyday Life and Lab for MUSC 1002	
Contemporary / Popular Music		
Complete one of the following:		4
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	
MUSI 3360	Global Music Industries in Context	
MUSI 3401	Hip Hop in the Music Industry	
Music Technology		
MUSC 2350	Acoustics and Psychoacoustics of Music	4
MUST 1220	Introduction to Music Technology	4
MUST 2102	Composing with Digital Technologies	4
MUST 2431	Computer Music Fundamentals	4
Music Industry		
Complete one of the following:		4
MUSI 1230	Introduction to Music Industry	
MUSI 2331	Music Production and Recording 2	
Music Technology Electives		
Complete two of the following:		8
MUSC 4510	Music and the Brain Research	
MUST 3300	Musical Interactions in Extended Reality	
MUST 3601	Digital Audio Signal Processing	
MUST 3602	Electronics for Music	
MUST 3603	Embedded Audio Programming	
MUST 3973	Special Topics in Music Technology	

MUST 4600	Digital Audio Signal Analysis	
MUST 4610	Composition for Electronic Instruments	
MUST 5973	Special Topics in Music Technology	
Music Technology Capstone		
MUST 4611	Music Technology Capstone	4

Foundations of Psychology

Code	Title	Hours
PSYC 1101	Foundations of Psychology	4

Computing and Social Issues

Code	Title	Hours
Complete one of the following:		
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	
DS 1300	Knowledge in a Digital World	
or PHIL 1300	Knowledge in a Digital World	
HIST 2220	History of Technology	
INSH 2102	Bostonography: The City through Data, Texts, Maps, and Networks	
JRNL 3700	Data Storytelling	
PHIL 1145	Technology and Human Values	
SOCL 1280	The Twenty-First-Century Workplace	
SOCL 2485	Environment, Technology, and Society	
SOCL 4528	Technology and Society	

Computer Science Writing Requirement

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

Required General Electives

Code	Title	Hours
Complete 16 semester hours of general electives.		16

NUpath Requirements Satisfied

- Engaging with the Natural and Designed World
- Exploring Creative Expression and Innovation
- Interpreting Culture
- 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 cumulative 2.000 GPA required in all CS, CY, DS, and IS courses

Music Technology Grade Requirement

Students must maintain at least a 2.667 GPA (B- average) in the requirements of the music half of the combined major (MUSC, MUSI, and MUST courses). 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

133 total semester hours required

Plan of Study

Sample Plans of Study

FOUR YEARS, TWO CO-OPS IN SPRING/SUMMER FIRST HALF

Year 1							
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CS 1200		1 CS 2100 and CS 2101		5 CS 3100 and CS 3101		5 PSYC 1101	4
CS 1800 and CS 1802		5 MUSC 2350		4 MUSC 1201		4 General Elective	4
ENGW 1111		4 MUSC 1119 ¹		4			
CS 2000 and CS 2001		5 MUST 1220		4			
MUSC 1001 or 1002 <i>and</i> 1003		4 EEAM 2000 (For CAMD students)		1			
	19		18			9	8
Year 2							
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CS 1210 (For Khoury students)		1 Co-op		0 Co-op		0 General Elective	4
CS 3000		4				General Elective	4
CS 3200		4					
MUST 2431		4					
MUSC 1202		4					
	17		0			0	8
Year 3							
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
MUSC 2111, 3541, or 3300		4 Co-op		0 Co-op		0 ENGW 3302, 3314, or 3315	4
CS 2484		4				General Elective	4
Contemporary music requirement ¹		4					
Music technology elective ¹		4					
	16		0			0	8
Year 4							
Fall	Hours	Spring	Hours				
MUST 2102		4 MUST 4611 ¹		4			
CS 4530 or 4535		4 Khoury Elective		4			
Computing and Social Issues		4 Music industry elective		4			
Khoury elective		4 Music technology elective		4			
	16		16				
Total Hours: 135							

¹ Students who place out of Fundamentals of Western Music Theory (MUSC 1119) should take a General Elective instead.

FOUR YEARS, TWO CO-OPS IN SUMMER SECOND HALF/FALL

Year 1							
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CS 1200		1 CS 2100 and CS 2101		5 CS 3100 and CS 3101		5 PSYC 1101	4
CS 1800 and CS 1802		5 MUSC 2350		4 MUSC 1201		4 General Elective	4
ENGW 1111		4 MUST 1220		4			
CS 2000 and CS 2001		5 MUSC 1119 ¹		4			
MUSC 1001 or 1002 <i>and</i> 1003		4 EEAM 2000 (For CAMD students)		1			
	19		18		9		8
Year 2							
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CS 3000		4 CS 1210 (For Khoury students)		1 General Elective		4 Co-op	0
CS 3200		4 MUSC 2111, 3541, or 3300		4 General Elective		4	
MUST 2431		4 CS 2484		4			
MUSC 1202		4 Contemporary music requirement		4			
		Music technology elective		4			
	16		17		8		0
Year 3							
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
Co-op		0 MUST 2102		4 ENGW 3302, 3314, or 3315		4 Co-op	0
		CS 4530 or 4535		4 General Elective		4	
		Computing and Social Issues		4			
		Khoury Elective		4			
	0		16		8		0
Year 4							
Fall	Hours	Spring	Hours				
Co-op		0 MUST 4611 ¹		4			
		Khoury Elective		4			
		Music industry elective		4			
		Music technology elective		4			
	0		16				
Total Hours: 135							

¹ Students who place out of Fundamentals of Western Music Theory (MUSC 1119) should take a General Elective instead.