

COMPUTER SCIENCE + MUSIC, BS

for the degree of Bachelor of Science in Computer Science + Music

The Bachelor of Science in Computer Science & Music (CS + Music) is designed for students who plan to pursue a career in music technology, as well as students who want to push the state-of-the-art in music composition and explore new avenues of expression. This degree will prepare students for advanced study at the graduate level for many existing programs in music and audio technology, as well as equip them with the proper skills to successfully join and lead a vibrant workforce centered around the creation and distribution of entertainment media through constantly evolving technological platforms.

The CS + Music curriculum provides a broad knowledge of the theory, design, and application of computer systems integrated with the theory, history, and application of music. The curriculum is formed around courses in music, mathematics, science, and computation. Advanced coursework includes either a senior thesis or a senior project. A minimum of 120 hours is required for graduation.

For admission requirements for the Bachelor of Science in CS + Music, please see the School of Music's Admissions website (listed above) or contact the Music Admissions Office:

Music Admissions Office
School of Music
1114 West Nevada Street
Urbana, IL 61801
(217) 244-7899

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Minimum hours required for graduation: 120 hours

General Education and College Orientation

Code	Title	Hours
Orientation to Fine & Applied Arts and Music		
FAA 101	Arts at Illinois	1
MUS 100	First-year Seminar for Music Majors	0
General Education and Graduation Requirements		
Composition I		4
Advanced Composition		3
Humanities and the Arts - fulfilled by MUS 313 and MUS 314		6
Cultural Studies: Western/Comparative Culture(s)		3
Cultural Studies: Non-Western Culture(s)		3
Cultural Studies: U.S. Minority Culture(s)		3
Natural Sciences and Technology		6
Social and Behavioral Sciences		6
Quantitative Reasoning I and II - fulfilled by CS 124 and CS 128		6
Language Other Than English		0-12
Specifics of the language requirements are listed in the Course Explorer. (https://courses.illinois.edu/gened/DEFAULT/DEFAULT/)		

Music Core

Code	Title	Hours
Music Theory and Musicianship		
MUS 101	Music Theory and Practice I	2
MUS 102	Music Theory and Practice II	2
MUS 201	Music Theory and Practice III	2
MUS 202	Music Theory and Practice IV	2
MUS 107	Musicianship I	2
MUS 108	Musicianship II	2
MUS 207	Musicianship III	2
MUS 208	Musicianship IV	2
Musicology		
MUS 110	Intro Art Mus: Intl Perspect	3
MUS 313	The History of Music I	3
MUS 314	The History of Music II	3
Keyboard Proficiency		
All students, except keyboard students, must demonstrate keyboard competency when they audition, by proficiency examination when they matriculate, or by enrolling in MUS 172 and/or MUS 173.		
MUS 172	Grp Instr Pno for Mus Major I	2
MUS 173	Grp Instr Pno for Mus Maj II	2

CS + Music Studies

Code	Title	Hours
Music		
MUS 105	Computation and Music I	2
MUS 205	Computation and Music II	2
MUS 299	Thesis/Adv UG Honors in Music	1 or 2
MUS 305	Computation and Music III	3
MUS 407	Elect Music Techniques I	3
MUS 409	Elec Music Techniques II	2
Senior Project or Senior Thesis		
Computer Science		
CS 124	Introduction to Computer Science I	3
CS 128	Introduction to Computer Science II	3
CS 173	Discrete Structures	3
CS 222	Software Design Lab	1
CS 225	Data Structures	4
Choose one of the following CS combinations:		
CS 233 & CS 341	Computer Architecture and System Programming	8
or		
CS 340	Introduction to Computer Systems	3
and any two 400-level CS courses above CS 403, excluding CS 421 and CS 491 (6-8 hours)		
CS 361	Probability & Statistics for Computer Science	3
Students who are more interested in systems building can substitute CS 427 for CS 361.		
CS 374	Introduction to Algorithms & Models of Computation	4
CS 421	Programming Languages & Compilers	3

CS 448	Audio Computing Laboratory	3 or 4
Engineering		
ECE 402	Electronic Music Synthesis	3
Math		
MATH 220	Calculus (Students must take the ALEKS placement exam for course entry)	4 or 5
or MATH 221	Calculus I	
MATH 231	Calculus II	3
MATH 225	Introductory Matrix Theory	2 or 3
or MATH 257	Linear Algebra with Computational Applications	
Total Hours		120

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Sample Sequence

This sample sequence is intended to be used only as a guide for degree completion. All students should work individually with their academic advisors to decide the actual course selection and sequence that works best for them based on their academic preparation and goals. Enrichment programming such as study abroad, minors, internships, and so on may impact the structure of this four-year plan. Course availability is not guaranteed during the semester indicated in the sample sequence.

Students must fulfill their Language Other Than English requirement by successfully completing a third level of a language other than English. See the corresponding section on the Degree and General Education Requirements (<http://catalog.illinois.edu/general-information/degree-general-education-requirements/>).

Free Electives: Additional course work, so that there are at least 120 credit hours earned toward the degree.

First Year

First Semester	Hours	Second Semester	Hours
FAA 101		1 MUS 102	2
MUS 100		0 MUS 108	2
MUS 101		2 MUS 105	2
MUS 107		2 CS 128	3
CS 124		3 CS 173	3
MATH 220 or 221		5-4 General Education course or Composition I	3-4
Composition I or General Education course		4-3	
		17	15

Second Year

First Semester	Hours	Second Semester	Hours
MUS 201		2 MUS 202	2
MUS 207		2 MUS 208	2
MUS 205		2 MUS 305	3
CS 222		1 MUS 172	2
CS 225		4 CS 233	4
MATH 231		3 CS 361	3
MATH 225 or 257		2-3	
		16	16

Third Year

First Semester	Hours	Second Semester	Hours
MUS 173		2 MUS 110	3
CS 341		4 CS 374	4
ECE 402		3 CS 448	3
General Education or Free Elective course		3 General Education or Free Elective course	4
General Education or Free Elective course		3	
		15	14

Fourth Year

First Semester	Hours	Second Semester	Hours
MUS 299		1 MUS 299	1
MUS 313		3 MUS 314	3
MUS 407		3 MUS 409	2
CS 421		3 General Education or Free Elective course	3
General Education or Free elective course		3 General Education or Free Elective course	3
		Free Elective course	2
		13	14

Total Hours 120

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By the end of the program, CS+Music graduates will demonstrate:

- An ability to acquire, understand, and integrate foundational knowledge in music and computer science, and to apply that knowledge to discover and engineer creative solutions to various types of complex problems.
- An ability to communicate, collaborate, and effectively engage with diverse people, teams, and communities.
- An understanding of how to apply musical practices and computer engineering principles with a mindfulness toward global cultural, economic, and societal differences.
- An ability to acquire and apply new knowledge as needed, using appropriate learning strategies, in furtherance of a culture of lifelong learning.

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Computer Science "CS + X" degree information (<https://cs.illinois.edu/academics/undergraduate/degree-program-options/cs-x-degree-programs/#requirements>)

School of Music website (<https://music.illinois.edu/>)

Overview of Music Admissions & Requirements (<https://music.illinois.edu/application-process/>)

Music Admissions email (musicadmissions@illinois.edu)