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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Graduation Requirements

Minimum hours required for graduation: 120 hours.

University Requirements

Minimum of 40 hours of upper-division coursework, generally at the 300- or 400-level. These hours can be drawn from all elements of the degree. Students should consult their academic advisor for additional guidance in fulfilling this requirement.

The university and residency requirements can be found in the Student Code (https://studentcode.illinois.edu/article3/part8/3-801/) (§ 3-801) and in the Academic Catalog (http://catalog.illinois.edu/general-information/degree-general-education-requirements/).

General Education Requirements

Follows the campus General Education (Gen Ed) requirements (https://courses.illinois.edu/gened/DEFAULT/DEFAULT/). Some Gen Ed requirements may be met by courses required and/or electives in the program.

Code	Title	Hours
Composition I		4-6
Advanced Composition		3
Humanities & the Arts (6 hours)		6
fulfilled by MUS 313 and MUS 314		
Natural Sciences & Technology (6 hours)		6
fulfilled by MUS 209 and any other course approved as Natural Sciences & Technology		
Social & Behavioral Sciences (6 hours)		6
Cultural Studies: Non-Western Cultures (1 course)		3
Cultural Studies: US Minority Cultures (1 course)		3
Cultural Studies: Western/Comparative Cultures (1 course)		3
Quantitative Reasoning (2 courses, at least one course must be Quantitative Reasoning I)		6-10
fulfilled by CS 124, CS 128, CS 225, MATH 220 or MATH 221, MATH 231		
Language Requirement (Completion of the third semester or equivalent of a language other than English is required)		0-15

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

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	Introd 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 209	Musical Acoustics	3
MUS 305	Computation and Music III	3
MUS 407	Elect Music Techniques I	3
Senior Project or Senior Thesis		
MUS 299	Thesis/Adv UG Honors in Music	1 or 2
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		
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. For more information, see the corresponding section on the Degree and General Education Requirements page *(*http://catalog.illinois.edu/general-information/degree-general-education-requirements/*).*

First Year

First Semester	**Hours**
FAA 101	1
MUS 100	0
MUS 101	2
MUS 107	2
CS 124	3
MATH 220 or 221	5
Composition I or Language Other Than English (3rd level)	4
	17

Total Hours 17

First Year

Second Semester	**Hours**
MUS 102	2
MUS 108	2
MUS 105	2
CS 128	3
CS 173	3
Language Other Than English (3rd level) or Composition I	4
	16

Total Hours 16

Second Year

First Semester	**Hours**
MUS 201	2
MUS 207	2
MUS 205	2
CS 222	1
CS 225	4
MATH 231	3
MATH 225 or 257	2
	16

Total Hours 16

Second Year

Second Semester	**Hours**
MUS 202	2
MUS 208	2
MUS 305	3
MUS 172	2
CS 233	4
CS 361	3
	16

Total Hours 16

Third Year

First Semester	**Hours**
MUS 173	2
CS 341	4
ECE 402	3

General Education course	3
General Education course (Choose a Social/Behavioral Science course that is also Cultural Studies)	3
	15

Total Hours 15

Third Year

Second Semester	**Hours**
MUS 110	3
CS 374	4
CS 448	3
MUS 209	3
	13

Total Hours 13

Fourth Year

First Semester	**Hours**
MUS 299	1
MUS 313	3
MUS 407	3
CS 421	3
General Education course	3
	13

Total Hours 13

Fourth Year

Second Semester	**Hours**
MUS 299	1
MUS 314	3
General Education course	3
General Education course	3
General Education course	3
Free Elective course	1
	14

Total Hours 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