

B.A. IN MUSIC *PLUS* A SECONDARY MAJOR IN DATA SCIENCE

- The B.A. degree in Music requires 120 credits.
--66 hours must be non-music credits.
--40 hours must be 300 or 400-level courses.
--All music majors have Arts Event Attendance Requirements; for details, check <https://www.butler.edu/jca/for-current-students>.
- The double major of Music and Data Science will fulfill the following Areas of Inquiry in the University Core Curriculum: Perspectives of the Creative Arts and Analytic Reasoning. In addition, the B.A. Music curriculum fulfills the Butler Cultural Requirement because of the arts event attendance requirements for all arts majors. The Indianapolis Community Requirement is NOT satisfied.
- The student will be assigned a Data Science advisor in addition to their Music advisor.

Semester 1

AM 021*	Keyboard Skills 1	1
<i>*Piano majors substitute AM 031 and AM 032 plus two credits of music electives for AM 021,022,023,024.</i>		
AM ____	Major Instrument or Voice	2
ES ____	Major Ensemble	1
MT 101	Music Theory 1	3
MT 111	Aural Skills 1	1
FYS 101	First Year Seminar	3
CS 151	Foundations of Computing 1	3
MA 106*	Calculus & Anal. Geo. 1	4

TOTAL Credit Hours: 18

Semester 2

AM 022	Keyboard Skills 2	1
AM ____	Major Instrument or Voice	2
ES ____	Major Ensemble	1
MT 102	Music Theory 2	3
MT 112	Aural Skills 2	1
FYS 102	First Year Seminar	3
CS 252	Foundations of Computing 2	3
MA 107	Calculus & Anal. Geo. 2	4

TOTAL Credit Hours: 18

**Math placement test required; the student may need to take MA 101 (Algebra, 3 cr.) and/or MA 102 (Precalculus, 3 cr.) prior to MA 106. Students get credit for MA 106 if they receive a 4 or 5 on the Calculus AB AP exam; they receive credit for both MA 106 and MA 107 if they receive a 4 or 5 on the Calculus BC AP exam with a 4 or 5 on the AB subscore.*

Semester 3

AM 023	Keyboard Skills 3	1
AM ____	Major Instrument or Voice	2
ES ____	Major Ensemble	1
ME 330	Self-Representation for Mus	1
MT 201	Music Theory 3	3
MT 211	Aural Skills 3	1
GHS ____	Global and Historical Studies	3

Semester 4

AM 024	Keyboard Skills 4	1
AM ____	Major Instrument or Voice	2
ES ____	Major Ensemble	1
MT 202	Music Theory 4	3
MT 212	Aural Skills 4	1

MA 162	Elementary Statistics	3	CS 248	Object-Orient Prog & Data Str	5
Language Elective		3	MA 310	Linear Algebra	3
			Language Elective		3

Explanation: 6 hours of the same language at the 200-level or higher are required.

TOTAL Credit Hours:	18	19
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**Math placement test required; the student may need to take MA 101 (Algebra, 3 cr.) and/or MA 102 (Precalculus, 3 cr.) prior to MA 106. Students get credit for MA 106 if they receive a 4 or 5 on the Calculus AB AP exam; they receive credit for both MA 106 and MA 107 if they receive a 4 or 5 on the Calculus BC AP exam with a 4 or 5 on the AB subscore.*

Semester 5

AM ____	Major Instrument or Voice	2
ES ____	Major Ensemble	1
MH 305	Music and Devotion	3
TI ____	Texts and Ideas	3
WB ____	Well-Being	1
CS 333	Database Systems	3
CS 351	Algorithms	3
MA 360	Probability Theory 1	3

TOTAL Credit Hours:	19
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Semester 6

AM ____	Major Instrument or Voice	2
ES ____	Major Ensemble	1
MH 306	Music and Narrative	3
GHS ____	Global and Historical Studies	3
CS 341	Advanced Data Structures	3
MA 320	Big Data Ethics, Gov & Beyond	3
MA 361	Statistical Theory	3

TOTAL Credit Hours:	18
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Semester 7

AM ____	Major Instrument or Voice	2
ES ____	Major Ensemble	1
MH 307	Music, Globalization & Industry	3
NW ____	The Natural World	5
SW ____	The Social World	3
CS 485	Computer Ethics	1
MA 362	Linear Regress & Time Series	3

TOTAL Credit Hours:	18
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Semester 8

AM ____	Major Instrument or Voice	2
ES ____	Major Ensemble	1
ME 430	E-Portfolio Capstone	0
MH 308-SJD	Music and Movement	3
CS 445	Artificial Intelligence	3
MA 369	Multivariate Statis Methods	3
MA 468	Predict Analy & Data Mining	3

TOTAL Credit Hours:	15
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SUMMARY

REQUIRED MUSIC COURSES:

Note: The 8-semester sequence shown above includes 4 additional semesters of Applied Music (8 credits) and 2 additional semesters of Major Ensemble (2 credits), in addition to the courses listed below. While not required in the B.A. degree, most music majors will take these additional classes for scholarship reasons.

AM 021,022,023,024	Keyboard Skills 1,2,3,4	4
<i>*Piano majors substitute AM 031 and AM 032 plus two credits of music electives.</i>		
AM ____	Major Instrument or Voice	8
ES ____	Major Ensemble	6
ME 330	Self-Representation for Musicians	1
ME 430	E-Portfolio Capstone	0
MH 305	Music and Devotion	3
MH 306	Music and Narrative	3
MH 307	Music, Globalization, and Industry	3
MH 308-SJD	Music and Movement	3
MT 101	Music Theory 1	3
MT 111	Aural Skills 1	1
MT 102	Music Theory 2	3
MT 112	Aural Skills 2	1
MT 201	Music Theory 3	3
MT 211	Aural Skills 3	1
MT 202	Music Theory 4	3
MT 212	Aural Skills 4	1
TOTAL		47 (plan shows 57 music credits per the note above)

UNIVERSITY CORE CURRICULUM:

FYS 101,102	First Year Seminar	3,3
GHS ____	Global and Historical Studies	3,3
NW ____	The Natural World	5
SW ____	The Social World	3
TI ____	Texts and Ideas	3
WB ____	Well-Being	1
TOTAL		24

COURSES REQUIRED FOR THE DATA SCIENCE MAJOR:

CS 151	Foundations of Computing 1	3
CS 248	Object-Oriented Prog & Data Structures	5
CS 252	Foundations of Computing 2	3
CS 333	Database Systems	3
CS 341	Advanced Data Structures	3
CS 351	Algorithms	3
CS 445	Artificial Intelligence	3
CS 485	Computer Ethics	1
MA 106*	Calculus and Anal Geometry 1	4
MA 107	Calculus and Anal Geometry 2	4
MA 162	Elementary Statistics	3
MA 310	Linear Algebra	3
MA 320	Big Data Ethics, Governance, and Beyond	3

MA 360	Probability Theory 1	3
MA 361	Statistical Theory	3
MA 362	Linear Regression and Time Series	3
MA 369	Multivariate Statistical Methods	3
MA 468	Predictive Analytics and Data Mining	3
Language	6 hours of the same language at the 200-level or higher	
TOTAL		62

**Math placement test required; the student may need to take MA 101 (Algebra, 3 cr.) and/or MA 102 (Precalculus, 3 cr.) prior to MA 106. Students get credit for MA 106 if they receive a 4 or 5 on the Calculus AB AP exam; they receive credit for both MA 106 and MA 107 if they receive a 4 or 5 on the Calculus BC AP exam with a 4 or 5 on the AB subscore.*