B.A. IN MUSIC *PLUS* A SECONDARY MAJOR IN MATHEMATICS

• 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 Mathematics 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 Mathematics major has two possible tracks: the pure math track (displayed below) and the applied math track; required courses for the applied math track are listed separately at the end of the summary.

• The student will be assigned a Mathematics advisor in addition to their Music advisor.

Semester 1

AM 021*	Keyboard Skills 1	1

   Piano majors substitute AM 031 and AM 032 plus two credits of music electives for AM 021,022,023,024.

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
MA 106*	Calculus & Anal. Geo. 1	4
Language Elective		3

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

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
MA 107	Calculus & Anal. Geo. 2	4
Language Elective		3
		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
MT 201	Music Theory 3	3

Semester 4

AM 024	Keyboard Skills 4	1
AM ____	Major Instrument or Voice	2
ES ____	Major Ensemble	1
ME 330	Self-Represent for Musicians	1

MT 211	Aural Skills 3	1	MT 202	Music Theory 4	3
			MT 212	Aural Skills 4	1
MA 200	Introduction to Proofs	3	MA 205	Discrete Mathematics	3
MA 208	Calculus & Anal. Geo. 3	4	MA 310	Linear Algebra	3
TOTAL Credit Hours:		15			15

Semester 5

AM ____	Major Instrument or Voice	2
ES ____	Major Ensemble	1
MH 305	Music and Devotion	3
GHS ____	Global and Historical Studies	3
WB ____	Well-Being	1
MA ____	MA Elective	3
Programming elective (CS 142 or higher)		3
TOTAL Credit Hours:		16

Semester 6

AM ____	Major Instrument or Voice	2
ES ____	Major Ensemble	1
MH 306	Music and Narrative	3
SW ____	The Social World	3
MA 330	Complex Analysis	3
MA 412	Algebra: Groups	3
MA ____	MA Elective	3
		18

Semester 7

AM ____	Major Instrument or Voice	2
ES ____	Major Ensemble	1
MH 307	Music, Globalization & Industry	3
GHS ____	Global and Historical Studies	3
TI ____	Texts and Ideas	3
MA 426	Analysis: Theory of Calculus	3
MA ____	MA 413 or MA 427	3
TOTAL Credit Hours:		18

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
NW ____	The Natural World	5
MA 497/498	Math Capstone/Thesis	1-3
MA ____	MA Elective	3
		15-17

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

  *Piano majors substitute AM 031 and AM 032 plus two credits of music electives.

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 MATHEMATICS MAJOR:
  Courses taken for both tracks:

MA 106*	Calculus & Anal Geometry 1	4
MA 107	Calculus & Anal Geometry 2	4
MA 200	Introduction to Proofs	3
MA 208	Calculus & Anal Geometry 3	4
MA 310	Linear Algebra	3
ONE of the following courses:		1-3
MA 497	Mathematics Capstone (3)	
MA 498	Mathematics Thesis (1-3)	
Programming Elective (CS 142 or higher)		3
Language	6 hours of the same language at the 200-level or higher	

  Courses taken for the pure math track (shown in the above plan):

MA 205	Discrete Mathematics	3
MA 330	Complex Analysis	3
MA 412	Algebra: Groups	3
MA 426	Analysis: Theory of Calculus	3

ONE of the following courses: 3
   MA 413   Algebra: Rings and Fields
   MA 427   Analysis: Lebesgue Integration
NINE credits of Math Electives (MA 301,305,311-399,413-428,473) 9

                TOTAL   ***52-54***

Courses taken for the applied math track:

MA 334   Differential Equations   3
ONE of the following Algebra courses: 3
   MA 412   Algebra: Groups
   MA 413   Algebra: Rings and Fields
ONE Statistics option: 3-6
   MA 359   Probability and Statistics (3)
   MA 162/MA 360 Elem Statistics/Probability Theory 1 (3/3)
ONE of the following Analysis courses: 3
   MA 426   Analysis: Theory of Calculus
   MA 427   Analysis: Lebesgue Integration
   MA 428   Analysis: Calculus on Manifolds
TWO of the following Applied courses: 6
   MA 337   Applied Dynamics and Stability Theory
   MA 365   Numerical Analysis
   MA 396   Operations Research
TWO Math Electives (300/400-level, from an approved list)   6

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