

## BUTLER UNIVERSITY • DEPARTMENT OF ART

### B.A. IN ART + DESIGN PLUS A SECONDARY MAJOR IN PHYSICS

- The B.A. degree in Art + Design requires 126 credits.
  - 40 hours must be 300 or 400-level courses.
  - All art majors have Arts Event Attendance Requirements; for details, check <https://www.butler.edu/jca/for-current-students>.
- The double major of Art + Design and Physics will fulfill the following Areas of Inquiry in the University Core Curriculum: Perspectives of the Creative Arts, The Natural World, and Analytic Reasoning. In addition, the B.A. Art + Design curriculum fulfills the Indianapolis Community Requirement and the Social Justice and Diversity requirement of the Butler University Core Curriculum; art majors are exempted from the Butler Cultural Requirement because of the arts event attendance requirements for all arts majors.
- The student will be assigned a Physics advisor in addition to their Art advisor.

#### **Semester 1**

ART 105	Art History Survey 1	3
ART 107	Drawing 1	3
FYS 101	First Year Seminar	3
PWB _____	Physical Well-Being	1
MA 106*	Calculus & Anal. Geo. 1	4
Language Elective		3

#### **Semester 2**

ART 205	Art History Survey 2	3
ART 210	Professional Practices	3
FYS 102	First year Seminar	3
MA 107	Calculus & Anal Geo. 2	4
Language Elective		3

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

TOTAL Credit Hours:	17	16
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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 3**

ART 308	Graphic Design 1	3
ART _____	Art Elective	3
GHS _____	Global and Historical Studies	3
MA 208	Calculus & Anal. Geo. 3	4
PH 201	Intro to Anal. Physics 1	5

#### **Semester 4**

ART _____	Art Elective	3
ART _____	Art Elective	3
GHS _____	Global and Historical Studies	3
MA 310	Linear Algebra	3
PH 202	Intro to Anal. Physics 2	5

TOTAL Credit Hours:	18	17
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**Semester 5**

ART ____	Art-Focused SJD Elective	3
ART ____	Art Elective	3
AS 311**	Astrophysics 1	3
PH 301	Modern Physics	3
PH 331	Electromagnetic Theory	4

TOTAL Credit Hours: 16

**Semester 6**

ART ____	Art Elective	3
ART ____	Art Elective	3
MA 334	Differential Equations	3
PH 303	Electromag Waves & Optics	3
PH 311	Experiment Modern Physics	3
PH 315**	Math Methods for Physics	4

TOTAL Credit Hours: 19

\*\*Not required for the Physics major, but recommended for students considering graduate school in Physics.

**Semester 7**

ART 453-ICR	Internship	3
TI ____	Texts and Ideas	3
AS 340**	Cosmol & Extragal Astrophy	3
PH 421	Quantum Theory	4
PH 461**	Computational Physics	3
PH 490	Colloquium	0
PH 495	Senior Seminar	1

TOTAL Credit Hours: 17

**Semester 8**

ART 411	Thesis	3
SW ____	The Social World	3
PH 321	Inter Classical Mechanics	4
PH 325	Therm & Statistical Physics	4
PH 422**	Quantum Theory 2	4

TOTAL Credit Hours: 18

\*\*Not required for the Physics major, but recommended for students considering graduate school in Physics.

## SUMMARY

### **REQUIRED ART COURSES:**

ART 105	Art History Survey 1	3
ART 107	Drawing 1	3
ART 205	Art History Survey 2	3
ART 210	Professional Practices	3
ART 308	Graphic Design 1	3
ART 411	Thesis	3
ART 451/2/3-ICR	Internship	3
Art-Focused Social Justice and Diversity course: Choose ONE:		3
ART 317-SJD	American Art and Visual Culture	
ART 319-SJD	World History of Photography	
ART 320-SJD	Race, Gender & Sexuality in Cont Art	

EIGHTEEN credits chosen from the following: 18 (maximum of 6 in Art History\*)

ART 207,307	Drawing 2,3	3,3
ART 303,313,323	Photography 1,2,3	3,3,3
ART 304	Depiction	3
ART 305	Animation + Video	3
ART 311	Function	3
ART 312*	Design: History and Theory	3
ART 314*	Art Museum Studies	3
ART 315*	Postmodernism in the Arts	3
ART 316*	Modernism in the Arts	3
ART 317-SJD*	American Art and Visual Culture	3
ART 318,328	Graphic Design 2,3	3,3
ART 319-SJD*	World History of Photography	3
ART 320-SJD*	Race, Gen & Sexuality in Cont Art	3
ART 322,332,342	Painting 1,2,3	3,3,3
ART 360	Sculpture	3
ART 380/1/2	Special Topics in Art and Visual Cult	1,2,3
ART 401/2/3	Independent Study	1,2,3
ART 499	Honors Thesis	3

**TOTAL 42**

### **UNIVERSITY CORE CURRICULUM:**

FYS 101,102	First Year Seminar	3,3
GHS _____	Global and Historical Studies	3,3
SW _____	The Social World (if needed)	3
TI _____	Texts and Ideas	3
PWB _____	Physical Well-Being	1
<b>TOTAL</b>		<b>19</b>

### **COURSES REQUIRED FOR THE PHYSICS MAJOR:**

NOTE: Many upper-level physics courses require one or more of the following math courses as prerequisites (included in the plan above):

MA 106*	Calculus & Anal Geometry 1	4
MA 107	Calculus & Anal Geometry 2	4
MA 208	Calculus & Anal Geometry 3	4
MA 310	Linear Algebra	3

MA 334	Differential Equations	3	
PH 201	Introduction to Analytical Physics 1	5	
PH 202	Introduction to Analytical Physics 2	5	
PH 301	Modern Physics	3	
PH 303	Electromagnetic Waves and Optics	3	
PH 311	Experimental Modern Physics	3	
PH 321	Intermediate Classical Mechanics	4	
PH 325	Thermodynamics and Statistical Physics	4	
PH 331	Electromagnetic Theory	4	
PH 421	Quantum Theory	4	
PH 490	Colloquium	0	
PH 495	Senior Seminar	1	
TWO AS/PH Electives, chosen from:		6-8	
AS 301	Modern Astronomical Techniques	3	
AS 311	Astrophysics 1	3	
AS 312	Astrophysics 2	3	
AS 340	Cosmology & Extragalactic Astrophysics	3	
PH 315	Mathematical Methods for Physics	4	
PH 351	Analog Electronics 1	4	
PH 422	Quantum Theory 2	4	
PH 427	General Relativity and Gravity 1	3	
PH 461	Computational Physics	3	
PH 480	Special Topics	3	
Language	6 hours of the same language at the 200-level or higher		
<b>TOTAL</b>			<b>48-50 (plus 18 additional math credits, if necessary)</b>

*\*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.*

**Additional courses recommended for students going to graduate school in Physics (included in the plan above, and fulfill the AS/PH Elective requirement):**

AS 311	Astrophysics 1	3
AS 340	Cosmology & Extragalactic Astrophysics	3
PH 315	Mathematical Methods for Physics	4
PH 422	Quantum Theory 2	4
PH 461	Computational Physics	3