

PHYSICS, B.S.

(Fall 2017-Summer 2018)

PHYSICS BS COURSES & SUPPORTING COURSES (74 credits)

***Note: 2.0 GPA required in PHYS courses/B.S. degree**

***The Physics program can prepare you for careers in science and industry or teaching as well as graduate study in physics, medical physics, engineering, law and medicine. See physics advisor for additional information regarding concentration options and assistance in planning degree.**

- _____ 5 PHYS 15200 Mechanics (C- or above)
- _____ 5 PHYS 25100 Heat, Electricity and Optics
- _____ 3 PHYS 30500 Intermediate Math Physics
- _____ 4 PHYS 31000 Intermediate Mechanics
- _____ 3 PHYS 31200 Intermediate Electricity & Magnetism
- _____ 3 PHYS 32200 Intermediate Optics
- _____ 3 PHYS 32500 Scientific Computing
- _____ 3 PHYS 34200 Modern Physics
- _____ 1 PHYS 34300 Modern Physics Laboratory
- _____ 1 PHYS 34500 Optics Laboratory I
- _____ 1 PHYS 34600 Advanced Laboratory I
- _____ 4 PHYS 36100 Electronics for Scientists
- _____ 3 PHYS 41310 Electricity & Magnetism II
- _____ 3 PHYS 41800 Thermal Physics
- _____ 3 PHYS 44200 Quantum Mechanics
- _____ 3 PHYS 48001 Senior Thesis I
- _____ 0 1 Class in PHYS 48002 Senior Thesis II

SUPPORTING CHEMISTRY & MATHEMATICS COURSES

- _____ 4 MA 16500 Analytic Geometry & Calculus I (C- or above)
- _____ 4 MA 16600 Analytic Geometry & Calculus II (C- or above)
- _____ 4 MA 26100 Multivariate Calculus (C- or above)
- _____ 3 MA 35100 Elementary Linear Algebra (C- or above)
- _____ 3 MA 36300 Differential Equations
- _____ 4 CHM 11500 General Chemistry
- _____ 4 CHM 11600 General Chemistry

A&S BS LIBERAL ARTS REQUIREMENTS (14 credits — credits may vary with double counting/language placement – see advisor)

- _____ 3 Second Semester Writing (C- or higher) (ENG W140 or ENG W233)
- _____ 3 Speaking Requirement (C- or higher) (COM 11400 or HIST H125)
- _____ 8 Credits Language Sequence (credit/placement required for 2 semesters of foreign language)
_____ 7th semester _____ 8th semester (one course at second semester level required)
Options: (Arabic, French, German, Japanese, Latin, Spanish)

GENERAL EDUCATION REQUIREMENTS (33 Credits)

***Note: grades of C- or higher required in Gen Ed/2.0 GPA**

****Up to 6 credits in Gen Ed GA1 to GB7 and 3 credits GCAP (C8) may originate in major discipline—see advisor for more information.**

- _____ 3 GA1 Category A1 -- Written Communication (See Bulletin or myBLUEprint for **General Education** courses)
- _____ 3 GA2 Category A2 -- Speaking and Listening
- _____ 3 GA3 Category A3 -- Quantitative Reasoning
- _____ 3 GB4 Category B4 -- Scientific Ways of Knowing
- _____ 3 GB5 Category B5 -- Social & Behavioral Ways of Knowing
- _____ 3 GB6 Category B6 -- Humanistic and Artistic Ways of Knowing
- _____ 3 GB7/71 Category B7 or B71 -- Interdisciplinary or Creative Ways of Knowing
- _____ 9 Additional Credits -- Category A or B General Education courses
- _____ 3 **GCAP Category C8--Capstone Experience** (IPFW course only)

MINOR/ELECTIVES (to reach 120 credits): _____

IPFW Residency Requirements: _____ 32 credits at 200 level or above at IPFW _____ with 15 of 32 credits at 300-400 in major

B.S. Requirements: _____ 120 credits _____ 30 credits 300-400 level _____ 2.0 GPA Degree/Gen Ed _____ C- or above in Gen Ed Courses

PLAN—PHYSICS, B.S.

(Fall 2017-Summer 2018)

Term: Year: 20				Term: Year: 20			
Course No.	Course Title	Pre-Reqs	Crs.	Course No.	Course Title	Pre-Reqs	Crs.
MA 165000 (GA3)	Analytic Geometry & Calculus 1	MA 159 or 154 (C- or above); placement	4	MA 16600	Analytic Geometry & Calculus II	MA 165 (C- or above)	4
PHYS 17000	Physics Seminar		1	PHYS 15200	Mechanics	C: MA 166	5
COM 11400 or HIST H125 (GA2/A&S)	Fundament of Speech or Great Debates		3	CHM 11600	General Chemistry	CHM 115 (C- or above); MA 163, 165, 227, or 229 level	4
CHM 11500 (GB4)	General Chemistry	H.S. CHM or CHM 111 (C- or above); MA 154, 227, 229 level	4	ENG W131 (GA1)	Read, Writ, & Inquiry I	Self-Place or ENG W129 (C- or above)	3
GB5	Gen Ed Social/Behavior		3				
Total Semester Credit Hours				Total Semester Credit Hours			
15				16			

Term: Year: 20				Term: Year: 20			
Course No.	Course Title	Pre-Reqs	Crs.	Course No.	Course Title	Pre-Reqs	Crs.
MA 26100	Multivariate Calculus	MA 166 (C- or above)	4	MA 35100	Elem Linear Algebra	2 sem calc (C- or above grades)	3
PHYS 25100	Heat, Electricity, and Optics	PHYS 152 (C- or above); P or C: MA 261	5	PHYS 34200	Modern Physics	PHYS 241 or 251 or 261	3
ENG W233	Intermed Expos Writing	ENG W131 (C- or above)	3	PHYS 34300	Modern Physics Lab	C: PHYS 342	1
GB6	Gen Ed Hum/Artistic		3	PHYS 31200	Interm Electricity & Magnetism	PHYS 251 and MA 363	3
					Elective	Freed elective	3
Total Semester Credit Hours				Total Semester Credit Hours			
15				13			

Term: Year: 20				Term: Year: 20			
Course No.	Course Title	Pre-Reqs	Crs.	Course No.	Course Title	Pre-Reqs	Crs.
MA 36300	Differential Equations	MA 261 or 263; P or C: MA 351 (C- or above grades required)	3	PHYS 41800	Thermal Physics	PHYS 342	3
PHYS 41310	Electricity & Magnetism II	PHYS 31200	3	PHYS 30500	Intermed Math Physics	PHYS 251	3
PHYS 32500	Scientific Counting	√	3	PHYS 32200	Intermediate Optics	PHYS 251/equiv	3
PHYS 34600	Advanced Lab I	PHYS 343	1	PHYS 34500	Optics Lab I	C: PHYS 322	1
Elective	Free elective		3	Elective	Free elective		3
Gen Ed A/B	Gen Ed A or B course		3	Elective	Free elective		3
Total Semester Credit Hours				Total Semester Credit Hours			
16				16			

Term: Year: 20				Term: Year: 20			
Course No.	Course Title	Pre-Reqs	Crs.	Course No.	Course Title	Pre-Reqs	Crs.
PHYS 44200	Quantum Mechanics	PHYS 342 and MA 363 (C- or above grades)	3	PHYS 31000	Intermed Mechanics	PHYS 152 and 251; MA 261 or 263	4
PHYS 48001 (C8)	Senior Thesis I	√	3	PHYS 36100	Electronics for Scientists	PHYS 251	4
FL 11 (GB7/71)	Foreign Language 1 (language may fulfill GB7)		4	FL 12 (GB7/71)	Foreign Language 2 (language may fulfill GB7)	FL 1/ placement	4
Elective	Free elective		3	Elective	Free elective (*if needed/120 credits)		*1
Elective	Free elective		3	PHYS 48002	Senior Thesis II	√	0
Total Semester Credit Hours				Total Semester Credit Hours			
16				13			

√ = See IPFW Bulletin or myBLUEprint for additional course prerequisites

Summer Courses:

120 credits required for Bachelor of Science degree
2.0 GPA required for Bachelor of Science degree/major