

BACHELOR OF ARTS IN PHYSICS ROADMAP

120 Total Units Required
 Minimum Number of Units in the Major: 54

This roadmap is a suggested plan of study and does not replace meeting with an advisor. Please note that students may need to adjust the actual sequence of courses based on course availability. Please consult an advisor in your major program for further guidance.

Course	Title	Units
First Semester		
ENG 114	Writing the First Year: Finding Your Voice (A2) ¹	3
MATH 226	Calculus I (Major Prerequisite, B4) ²	4
PHYS 200	Planning for Success as a Physics & Astronomy Major (Major Prerequisite)	1
GE Area A ³		3
GE Area C		3
GE Area D		3
Units		17
Second Semester		
MATH 227	Calculus II (Major Prerequisite)	4
PHYS 220 & PHYS 222	General Physics with Calculus I and General Physics with Calculus I Laboratory (Major Prerequisites, B1, B3)	4
GE Area A		3
GE Area E		3
Units		14
Third Semester		
Select One (Major Upper-Division Core):		3
CSC 309	Computer Programming	
MATH 209	Mathematical Computing	
MATH 228	Calculus III (Major Prerequisite)	4
PHYS 230 & PHYS 232	General Physics with Calculus II and General Physics with Calculus II Laboratory (Major Prerequisites)	4
GE Area B: Life Science (B2)		3
Units		14
Fourth Semester		
Select One (Major Prerequisite):		3

MATH 225	Introduction to Linear Algebra	
MATH 245	Elementary Differential Equations and Linear Algebra	
PHYS 240 & PHYS 242	General Physics with Calculus III and General Physics with Calculus III Laboratory (Major Prerequisites)	4
GE Area D		3
GE Area C - Take Two		6
Units		16
Fifth Semester		
Select One (Major Prerequisite):		3
MATH 376	Ordinary Differential Equations I (if MATH 225 taken)	
SF State Studies or University Elective (if MATH 245 taken) ⁴		
PHYS 320	Modern Physics I (Major Upper-Division Core)	3
PHYS 321	Modern Physics Laboratory (Major Upper-Division Core)	2
PHYS 385	Introduction to Theoretical Physics I (Major Upper-Division Core)	3
GE Area F [±]		3
Units		14
Sixth Semester		
PHYS 360	Electricity and Magnetism I (Major Upper-Division Core)	3
PHYS 370	Thermodynamics and Statistical Mechanics (Major Upper-Division Core)	3
Select One:		3
Major Elective (if MATH 245 taken) ⁵		
SF State Studies or University Elective (if MATH 225/MATH 376 taken) ⁴		
GE Area UD-C: Upper-Division Arts and/or Humanities		3
U.S. and California Government (http://bulletin.sfsu.edu/undergraduate-education/american-institutions/#usg)		3
Units		15
Seventh Semester		
PHYS 330	Analytical Mechanics I (Major Upper-Division Core)	3
PHYS 491GW	Advanced Laboratory Techniques I - GWAR (Culminating Experience)	3

GE Area UD-B: Upper-Division Physical and/or Life Sciences	3
GE Area UD-D: Upper-Division Social Sciences	3
SF State Studies or University Elective ⁴	3
Units	15
Eighth Semester	
SF State Studies or University Elective - Take Five ⁴	15
Units	15
Total Units	120

¹ ENG 114 can only be taken if you complete Directed Self-Placement (DSP) and select ENG 114; if you choose ENG 104/ENG 105 through DSP you will satisfy A2 upon successful completion of ENG 105 in the second semester; multilingual students may be advised into alternative English courses.

² To determine the best B4 course option, students should complete the online advising activity at mathadvising.sfsu.edu (<https://mathadvising.sfsu.edu/>). Questions? Contact Gator Smart Start. (<https://gatorsmartstart.sfsu.edu/>)

³ To avoid taking additional units, it is recommended that you meet the **SF State Studies** (AERM, GP, ES, SJ) requirements within your GE or major.

⁴ **Complementary Studies**

Upon completion of the BA in Physics program, students will have taken 12 units of calculus courses that satisfy complementary studies.

⁵ **Electives (0-3 units)**

Choose enough upper division PHYS and/or ASTR course to reach 54 units for the major. Students who take MATH 225 & MATH 376 will not need to take a PHYS or ASTR elective.

± Given catalog rights, fall 2023 transfer students do not need to complete an Area F course.