BACHELOR OF SCIENCE IN PHYSICS: CONCENTRATION IN PHYSICS FOR TEACHING - QUANTITATIVE REASONING CATEGORY I/II AND ENG 114

120 Total Units Required
Minimum Number of Units in the Major: 64

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
GE Area A [3]		3
GE Area C		3
GE Area D		3
	Units	16
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 Prerequisite, B1, B3)	4
GE Area A		3
GE Area E		3
	Units	14
Third Semester		
MATH 228	Calculus III (Major Prerequisite)	4
PHYS 230 & PHYS 232	General Physics with Calculus II and General Physics with Calculus II Laboratory (Major Prerequisite)	4
GE Area B: Life Science (B2)		3
SF State Studies or University Elective (if selecting MATH 245) or		3
MATH 325	Linear Algebra (if selecting MATH 376)	
	Units	14
Fourth Semester		
MATH 245 or MATH 376	Elementary Differential Equations and Linear Algebra (Major Prerequisite) or Ordinary Differential Equations I	3
PHYS 240 & PHYS 242	General Physics with Calculus III and General Physics with Calculus III Laboratory (Major Prerequisite)	4
GE Area C - Take Two		6
GE Area D		3
	Units	16
Fifth Semester		
PHYS 320	Modern Physics I (Major Upper-Division Core)	3
PHYS 321	Modern Physics Laboratory (Major Upper-Division Core)	2
PHYS 330	Analytical Mechanics I (Major Upper-Division Core)	3
PHYS 385	Introduction to Theoretical Physics I (Major Upper-Division Core)	3
GE Area D		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
Major Elective (12 Units Total) - Take Two [4]		6
GE Area UD-D: Upper-Division Social Sciences (Consider SF State Studies Course)		3
	Units	15
Seventh Semester		
PHYS 490	Physics Project Laboratory (Major Upper-Division Core)	2
SCI 652	SF State Science Partners in K-12 Schools (Major Upper-Division Core)	4
Major Elective (12 Units Total) - Take One [4]		3
GE Area UD-B: Upper-Division Physical and/or Life Sciences (Consider SF State Studies Course)		3

GE Area UD-C: Upper-Division Arts and/or Humanities (Consider SF State Studies Course)		3
	Units	15
Eighth Semester		
PHYS 491GW	Advanced Laboratory II - GWAR (Major Upper-Division Core) [4]	1
PHYS 695	Culminating Experience in Physics (Major Upper-Division Core)	1
Major Elective (12 Units Total) - Take One [4]		3
SF State Studies or University Elective – Take Four		11
	Units	16
	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. Depending on courses completed through Early Start, students in Pathway/Category III or IV may be required to enroll in a support course to complement their Quantitative Reasoning/B4 requirement. There are multiple course options for this pathway. Before enrolling in a B4 course, students should verify their MATH Pathway/Category in their Student Center (http://cms.sfsu.edu/content/student-center). Information regarding the courses that correspond with your MATH Pathway/Category can be found on the Developmental Studies Office Website (http://developmentalstudies.sfsu.edu).
3. To avoid taking additional units, it is recommended that you meet **SF State Studies** requirements (AERM, GP, ES, SJ) within your GE or major.
4. Selected in consultation with a departmental advisor to prepare to teach a second subject in addition to physics, or general science at the 9th grade level. Electives may be lower-division or upper-division courses.