## BACHELOR OF ARTS IN PHYSICS - QUANTITATIVE REASONING CATEGORY I/II AND ENG 114

120 Total Units Required  
Minimum Number of Units in the Major: 52

### Course | Title | Units
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**First Semester**
ENG 114 | Writing the First Year: Finding Your Voice (A2) | 3
MATH 226 | Calculus I (Major Prerequisite, B4) | 4
GE Area A | | 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 Prerequisites, B1, B3) | 4
GE Area A | | 3
GE Area E | | 3
**Units** | | 16

### 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 Prerequisites) | 4
GE Area B: Life Science (B2) | | 3
SF State Studies or University Elective (if selecting MATH 245) | | 4
MATH 325 | Linear Algebra (if selecting MATH 376) | 14
**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 Prerequisites) | 4
GE Area D | | 3
GE Area C - Take Two | | 6
**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** | | 16

### 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 (On advisement. PHYS 460 or PHYS 325 recommended.) | | 2
GE Area UD-C: Upper-Division Arts and/or Humanities (Consider SF State Studies Course) | | 3
Complementary Studies or SF State Studies or University Elective – Take Two | | 5
**Units** | | 16

### Seventh Semester
PHYS 490 | Physics Project Laboratory (Major Upper-Division Core) | 2
Major Elective (On advisement. PHYS 460 or PHYS 325 recommended.) | | 2
GE Area UD-B: Upper-Division Physical and/or Life Sciences (Consider SF State Studies Course) | | 3
| GE Area UD-D: Upper-Division Social Sciences (Consider SF State Studies Course) | 3 |
| SF State Studies or University Elective - Take Two | 6 |

**Eighth Semester**

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<tr>
<th>Course</th>
<th>Units</th>
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<tr>
<td>PHYS 491GW</td>
<td>Advanced Laboratory II - GWAR (Major Upper-Division Core)</td>
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<tr>
<td>PHYS 695</td>
<td>Culminating Experience in Physics (Major Upper-Division Core)</td>
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Major Elective (On advisement. PHYS 460 or PHYS 325 recommended.) | 4

Complementary Studies or SF State Studies or University Elective - Take Three | 8

| Units | 14 |

Total Units | 120

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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](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](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. **Complementary Studies**

   Upon completion of the B.A. in Physics program, students will have taken 12 units of Calculus courses that satisfy the Complementary Studies requirement for a B.A. degree. Students who have earned AA-T or AS-T degrees and are pursuing a similar B.A. degree at SF State are required to fulfill the Complementary Studies requirement as defined by the major department. Students should consult with a major advisor about how transfer units and/or SF State units can best be applied to this requirement in order to ensure degree completion within 60 units.