INTRODUCTORY REQUIREMENTS

Calculus:  MATH 19A (FWS) ___ OR MATH 20A (F) ___  
MATH 19B (FWS) ___ OR MATH 20B (W) ___  

Vector Calculus:  MATH 23A (FWS) ___ AND MATH 23B (FWS) ___  

Physics:  PHYS 5A/L (FW) ___ + 5B/M (WS) ___ + 5C/N (FS) ___ + 5D (F) ___  

NOTE: To declare this major, PHYS SABC must be completed with a GPA of 2.7 or higher.

Computer Programming:  ASTR 119 Intro to Scientific Computing (IDL) (WS) ___  
CMPS 5C Programming in C/C++ (*) ___  
CMPS 5J Programming in Java (FWS) ___  
CMPS 5P Programming in Python (WS) ___  
PHYS 115 Computational Physics (C/C++, Fortran) (S) ___  

ADVANCED REQUIREMENTS 15 courses and a senior thesis

Modern Physics:  PHYS 102 Modern Physics (FW) ___  
Mechanics:  PHYS 105 Mechanics (F) ___  

Electricity/Magnetism/Optics:  PHYS 110A Electricity, Magnetism, and Optics (W) ___  
PHYS 110B Electricity, Magnetism, and Optics (S) ___  

Thermodynamics:  PHYS 112 Thermodynamics and Statistical Mechanics (W) ___  

Math Methods:  PHYS 116A Mathematical Methods in Physics (W) ___  
PHYS 116B Mathematical Methods in Physics (S) ___  
PHYS 116C Mathematical Methods in Physics (F) ___  

Quantum Mechanics:  PHYS 139A Quantum Mechanics (S) ___  

Electives:  THREE from the following...
ASTR 111 Order-of-Magnitude Astrophysics (F) ___  
ASTR 112 Physics of Stars (W) ___  
ASTR 113 Introduction to Cosmology (W) ___  
ASTR 117 High Energy Astrophysics (*) ___  
ASTR 118 Physics of Planetary Systems (S) ___  
ASTR 257 Modern Astronomical Techniques (F) ___  
PHYS 129 Nuclear and Particle Astrophysics (W) ___  
PHYS 171 General Relativity, Black Holes, and Cosmology (F) ___  

Intermediate Laboratory:  PHYS 133 (FW) ___  

Advanced Laboratory:  PHYS 135 ___ OR PHYS 135A/B (F/W) ___ OR PHYS 136 (S) ___  

DISCIPLINARY COMMUNICATION REQUIREMENT  
Satisfied by successful completion of PHYS 182 and the senior thesis.  
NOTE: This requirement MUST be completed at UCSC.

COMPREHENSIVE REQUIREMENT  
PHYS 182 Scientific Communication for Physicists (FW) ___  
Senior Thesis on an astronomy-related topic ___