

**2016-2017**  
**OCEANIC AND ATMOSPHERIC SCIENCES**

**Lower Division Requirements** (All courses must be taken for a Letter Grade)

Math	20A_____ 20B_____ 20C_____ 20D_____ 20E_____ 18_____
Chemistry	6A_____ 6B_____ 6C_____ 7L_____
Physics	2A_____ 2B_____ 2C_____ (or 4A_____ 4B_____ 4C_____)
Physics Lab	2BL_____ 2CL_____
SIO	60_____

**Upper Division Requirements** (All courses must be taken for a Letter Grade)

**Group A: Core Requirements (all courses are required):**

SIO 171	_____	Introduction to Physical Oceanography
SIO 172	_____	Physics of the Atmosphere
SIO 174	_____	Chemistry of the Ocean and Atmosphere

**Group B: Upper-Division Restricted Electives (choose at least 4 of the following):**

SIO 111	_____	Introduction to Ocean Waves
SIO 117	_____	The Physical Basis of Global Warming
SIO 141	_____	Chemical Principles of Marine Systems
SIO 143	_____	Ocean Acidification
SIO 173	_____	Dynamics of Atmosphere and Climate
SIO 175	_____	Analysis of Oceanic and Atmospheric Data
SIO 176	_____	Observational Physical Oceanography
SIO 177	_____	Fluid Dynamics
SIO 178	_____	Geophysical Fluid Dynamics

**Group C: Upper-Division Restricted Electives (choose at least 5 of the following):**

Student may use any additional course(s) from the Restricted Electives list (Group B, above) as a Group C elective

SIO 101_____ California Coastal Oceanography	MATH 110A _____ Intro to Partial Differential Equations
SIO 108_____ Introduction to Paleoclimatology	MATH 110B _____ Elements of Partial Differential Equations and Integral Equations
SIO 110_____ Introduction to GIS & GPS for Scientists	MATH 120A _____ Elements of Complex Analysis
SIO 113_____ Introduction to Computational Earth Sciences	MATH 120B _____ Applied Complex Analysis
SIO 115_____ Ice and the Climate System	MATH 180A _____ Introduction to Probability
SIO 119_____ Physics and Chemistry of the Oceans	PHYSICS 110A _____ Mechanics I
SIO 134 _____ Introduction to Biological Oceanography	PHYSICS 110B _____ Mechanics II
SIO 135 _____ Satellite Remote Sensing	PHYSICS 140A _____ Statistical and Thermal Physics I
SIO 160 _____ Introduction to Tectonics	PHYSICS 140B _____ Statistical and Thermal Physics II
SIO 199 _____ Independent Study	
CHEM 127 _____ Physical Chemistry	MAE 101A _____ Introductory Fluid Mechanics
CHEM 130 _____ Chemical Physics: Quantum Mechanics	CENG 101A _____ Introductory Fluid Mechanics
CHEM 131 _____ Chemical Physics: Stat Thermo I	
CHEM 132 _____ Chemical Physics: Stat Thermo II	
CHEM 171 _____ Environmental Chemistry I	
CHEM 173 _____ Atmospheric Chemistry	

All Upper Division courses are 4 units unless otherwise indicated.