**2023-2024**

**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

SIO 108\_\_\_\_\_Introduction to Paleoclimatology

SIO 110\_\_\_\_\_Introduction to GIS & GPS for Scientists

SIO 113\_\_\_\_\_ Introduction to Computational Earth Sciences

SIO 115\_\_\_\_\_Ice and the Climate System

SIO 134\_\_\_\_\_ Introduction to Biological Oceanography
SIO 135\_\_\_\_\_Satellite Remote Sensing

SIO 160\_\_\_\_\_ Introduction to Tectonics

SIO 179\_\_\_\_\_ Ocean Instruments and Sensors

SIO 199\_\_\_\_\_Independent Study

CHEM 127 \_\_\_\_\_ Physical Chemistry

CHEM 130 \_\_\_\_\_ Chemical Physics: Quantum Mechanics

CHEM 131 \_\_\_\_\_ Chemical Physics: Stat Thermo I

CHEM 132 \_\_\_\_\_ Chemical Physics: Stat Thermo II

CHEM 171 \_\_\_\_\_ Environmental Chemistry I

CHEM 173 \_\_\_\_\_ Atmospheric Chemistry

MATH 110A \_\_\_\_\_ Intro to Partial Differential Equations

MATH 110B\_\_\_\_\_ Elements of Partial Differential Equations

 and Integral Equations

MATH 120A\_\_\_\_\_ Elements of Complex Analysis

MATH 120B\_\_\_\_\_ Applied Complex Analysis

MATH 180A\_\_\_\_\_ Introduction to Probability

PHYSICS 110A\_\_\_\_\_Mechanics I

PHYSICS 110B\_\_\_\_\_Mechanics II

PHYSICS 140A\_\_\_\_\_ Statistical and Thermal Physics I

PHYSICS 140B\_\_\_\_\_ Statistical and Thermal Physics II

MAE 101A \_\_\_\_\_ Introductory Fluid Mechanics

CENG 101A \_\_\_\_\_Introductory Fluid Mechanics

**All Upper Division courses are 4 units unless otherwise indicated.**