Administrative Unit: Science Department

Course Prefix and Number: ENVS 220

Course Title: Introduction to Atmospheric Sciences

Number of: Credit Hours: 3 Lecture Hours: 3 Laboratory Hours: 0

Catalog Description: An introduction to the study of weather and climate. Crosslisted as GEOG 220. Prerequisite: Sophomore standing or instructor's permission.

Prerequisite(s)/Corequisite(s): Sophomore standing or instructor's permission.

Text(s): Most current editions of the following:


Course Objectives:

- To understand the atmospheric processes causing local, short-term, large-scale climatic patterns and change.

Measurable Learning Outcomes:

- Outline the events leading to the origin and composition of the atmosphere.
- Discuss the distribution of atmospheric mass and gaseous constituents.
- Describe temperature, wind and precipitation patterns.
- Apply gas laws to atmospheric thermodynamics.
- Name and illustrate surface and upper-level weather elements.
- Describe atmospheric aerosol and cloud processes.
- Identify different cloud morphologies.
- Distinguish characteristics of extreme storms.
- Apply the principles of radiative transfer.
- Describe the concept of global energy balance.
- Discuss the influence of planetary rotation on circulation.
- Describe the atmospheric general circulation.

Topical Outline (major areas of coverage):

- Origins and Composition of the Atmosphere
- Effects of Heat Imbalance, Air Pressure, Humidity, etc.
- Clouds—different types
- Precipitation
• Flow of Wind
• Air Masses, Fronts, etc.
• Local and Tropical Storms
• Air Pollution
• Weather Forecasting
• Local and Global Climate

Recommended maximum class size for this course: 30

Library Resources: Online databases are available at http://www.ccis.edu/offices/library/resources.asp. You may access them from off-campus using your eServices login and password when prompted.

Prepared by: Julie Estabrooks, Ph.D.

Name ______________________________ Signature ______________________________

Date: April 6, 2006

NOTE: The intention of the master syllabus is to provide an outline of the contents of this course, as specified by the faculty of Columbia College, regardless of who teaches the course, when it is taught or where it is taught. Faculty members teaching this course for Columbia College are expected to facilitate learning pursuant to the course objectives and cover the subjects listed in the topical outline. However, instructors are also encouraged to cover additional topics of interest so long as those topics are relevant to the course’s subject. The master syllabus is, therefore, prescriptive in nature but also allows for a diversity of individual approaches to course material.

Office of Academic Affairs
12/04