

# METEOROLOGY EASC (120) SYLLABUS

## METEOROLOGY

WINTER, 2014

**Richard A. Jackson, Ph.D.**

**COURSE DESCRIPTION:** Atmospheric processes and their effects on the human population including temperature, air pressure, water vapor, etc.; the gradients and interactions of each variable and how they change in time and space. Laboratory includes the qualitative and quantitative analyses of meteorological phenomena.

**TEXT:** *Understanding Weather and Climate*; Edward Aguado & James E. Burt, 5th Ed.; Prentice Hall; 2010.

Note: It is mandatory that the textbook be purchased for this course. The course textbook **MUST** be brought to each lecture.

**COURSE OBJECTIVES:** Students will understand the following:

1. Students can demonstrate knowledge of atmospheric composition and structure
2. Students can demonstrate knowledge of scientific methods relating to qualitative and quantitative analysis of atmospheric variables and can develop some basic analysis techniques to aid in understanding weather and climate
3. Students can demonstrate knowledge of a wide range of atmospheric phenomena and their roles in affecting weather and climate on local, regional, continental, and global scales.
4. Students can demonstrate knowledge of the typical vertical variation of the basic variables used to quantify the atmospheric state, including temperature, pressure, humidity, winds, and natural and anthropogenic particles
5. Students can demonstrate knowledge of the basic techniques used by meteorologists (and other scientists) to gather and interpret atmospheric data
6. Students can demonstrate knowledge of climate and climate change, together with the possible influences that humans have on diverse climate phenomena
7. Students can demonstrate knowledge of the forces that drive three-dimensional atmospheric motions
8. Students can demonstrate knowledge of clouds and their formation mechanisms, together with the precipitation types and other materials that precipitation cleanses from the air
9. Students can demonstrate knowledge of a variety of large-scale atmospheric phenomena, including the extratropical cyclone, the jet stream, and the general circulation

**OFFICE HOURS:** T, Th 11:30-12:30, or by appointment.

**ASSESSMENT:**

3 One Hour Lecture Tests (100 points each) 75%

Laboratory Exams:

Mid-Term 50 points 12.5%

Final 50 points 12.5%

**ATTENDANCE POLICY:** Attendance will be taken in each class and laboratory period. Unexcused absences from lecture and lab will be reflected in the final grade. Students have the responsibility to secure and present evidence of the nature of any legitimate excused absence.

**CELL PHONES:** Cell phones MUST be turned off or put on “vibrate only” during class or lab. No texting or other use of cell phones will be tolerated during class.

**LECTURE SCHEDULE:** Please note that changes and alterations of topics and dates are inevitable so please remain flexible.

<u>TOPIC/CHAPTER</u>	<u>WEEK OF:</u>
Introduction/Atmospheric Composition (Chap. 1)	Jan. 13
Solar Radiation/Seasons (Chap. 2)	Jan. 20
Energy Balance & Temperature (Chap. 3)	Jan. 27
Atmospheric Pressure & Wind (Chap. 4)	Feb. 3
<b>Lecture Exam #1</b>	<b>Feb. 10</b>
Atmospheric Moisture (Chap. 5)	Feb. 17
Clouds (Chap. 6)	Feb. 24
<b>Semester Break.....Enjoy!!!! No Classes</b>	<b>Mar. 3</b>
Precipitation Processes (Chap. 7)	Mar. 10
Atmospheric Circulation & Pressure Distributions (Chap. 8)	Mar. 17

Air Masses & Fronts (Chap. 9)	Mar. 24
<b>Lecture Exam #2</b>	<b>Mar.31</b>
Midlatitude Cyclones (Chap. 10)	Apr. 7
Lightning, Thunder & Tornadoes (Chap. 11)	Apr. 14
Tropical Storms & Hurricanes (Chap. 12)	Apr. 21
<b>Lecture Exam #3 To Be Announced</b>	

\*Note: Lecture Test Dates are subject to change

### **LABORATORY SCHEDULE:**

<b><u>LAB TOPIC</u></b>	<b><u>WEEK OF:</u></b>
No lab meeting	Jan. 13
Seasons	Jan. 20
Insolation & Temperature	Jan. 27
Atmospheric Pressure/Wind	Feb. 3
Saturation and Atmospheric Stability	Feb. 10
Temperature and Air Mass Advection	Feb. 17
<b>Lab Mid-Term Examination</b>	<b>Feb. 24</b>
<b>Semester Break                  No Labs</b>	<b>Mar. 3</b>
Weather Map Analysis	Mar. 10
Mid-Latitude Cyclones	Mar. 17
Hurricanes	Mar. 24
Climate Controls	Mar. 31
Review	Apr. 7
<b>Lab Final Examination</b>	<b>Apr. 14</b>

**NOTE:** Students who wish to request accommodations in this class for a disability should contact Elaine Mara, assistant director of learning services for academic and disability support at 1307 Main Street, or by calling 610-861-1510. Accommodations cannot be provided until authorization is received from the Academic Support Center.