Semester and year: 
Course Number: 
Meeting Times and Locations: 

Instructor: 
Office Location: 
Phone: 
Office Hours: 
Email Address: 

COURSE TITLE: PHY 114 - METEOROLOGY 

COURSE DESCRIPTION: 
Meteorology is a study of the Physics of weather. It begins with the present composition of our atmosphere and study of the heat transfer mechanisms that lead to its thermal structure. Included is an analysis of the weather elements – temperature, humidity, clouds, pressure, winds, and precipitation and their physical interactions. The equations of motion are used to illustrate the development and circulation of air masses, fronts, anticyclones, cyclones, hurricanes, and severe storms. Special topics include the Chemistry of air pollution and the Physics of lightning. Labs emphasize sun-weather relationships, weather maps, and forecasting techniques. 
3 lectures, 3 labs, 4 credits 

General Education Course 

TEXTBOOKS: 

STUDENT LEARNING OBJECTIVES 
The student will be able to: 

A. Conduct a map discussion and demonstrate simple weather forecasting skills. 
B. Recognize the ways in which weather affects our daily lives. 
C. Develop a vocabulary of meteorological terms. 
D. Understand the vertical thermal structure of our atmosphere 
E. Understand the heat transfer mechanisms in our atmosphere 
F. Understand the controls of temperature 
G. Know how temperature is measured 
H. Know the various humidity variables 
I. Know how humidity is measured
J. Identify the various fogs  
K. Identify the various cloud types  
L. Understand the importance of instability and stability in the atmosphere  
M. Identify the various forms of precipitation  
N. Know how atmospheric pressure is measured  
O. Know how the various theoretical high and low pressure wind systems from the forces that go into them  
P. Be familiar with various local and seasonal winds  
Q. Understand what goes into the general circulation of the atmosphere  
R. Be familiar with jet streams  
S. Be familiar with air masses, fronts and how they affect the weather.  
T. Be aware of atmospheric optical phenomena  
U. Know the factors responsible for air pollution

**ASSESSMENT**
For learning objectives B through U, they will be assessed through student performances on examinations and laboratory reports. For learning objective A, it will be assessed by the student giving an actual verbal weather forecast, including analysis and discussion.

<table>
<thead>
<tr>
<th>WEEK</th>
<th>TOPIC</th>
<th>READING ASSIGNMENT</th>
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<tbody>
<tr>
<td>1/2</td>
<td>Earth and its atmosphere</td>
<td>1</td>
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<tr>
<td>3/4</td>
<td>Energy and atmospheric structure</td>
<td>2</td>
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<td>5/6</td>
<td>Seasonal and daily temperature</td>
<td>3</td>
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<td>7</td>
<td>Atmospheric optics</td>
<td>4</td>
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<td>(TEST 1-4)</td>
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<tr>
<td>8</td>
<td>Atmospheric Moisture</td>
<td>5</td>
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<td>9</td>
<td>Condensation</td>
<td>6</td>
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<td>10</td>
<td>Stability and cloud development</td>
<td>7</td>
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<tr>
<td>11</td>
<td>Precipitation</td>
<td>8</td>
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<td>(TEST 5-8)</td>
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<tr>
<td>12</td>
<td>Wind and pressure</td>
<td>9 &amp; 10</td>
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<td>13</td>
<td>Global wind systems/Air Masses</td>
<td>11 &amp; 12</td>
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<td>(TEST 9-12)</td>
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<td>14</td>
<td>Fronts, cyclones and weather prediction</td>
<td>13 &amp; 14</td>
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<td>15</td>
<td>Thunderstorm\Tornado\Hurricanes</td>
<td>15 &amp; 16</td>
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<td>FINAL EXAMINATION</td>
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**GRADING POLICY:** Arithmetic average of 3 examinations plus a LAB FOLDER grade and FINAL examination. (Five grades)

From the above average, after two ABSENCES, 3 points will be subtracted for each subsequent absence. After 2 LATENESSES, 1 point will be deducted for each subsequent lateness.

ESC114scosp10

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