Catalog Description: An introductory meteorology course designed to conceptually explore the principles and processes of weather. Students will study the fundamental principles of atmospheric structure and composition, radiation and energy as they relate to the Earth-Atmosphere system, air temperature, atmospheric moisture, and air pressure. The course investigates processes that cause fog, clouds, and precipitation. Students are provided a detailed study of wind and pressure systems around the world, as well as middle latitude and tropical weather phenomena such as air masses, cyclones, tornados and hurricanes. Satisfies the science elective requirement of the Math-Science curriculum and also satisfies the science requirement of those curricula which require science. Three class hours or equivalent per week. Prerequisites: None.

Course Objectives: Upon satisfactory completion of this course, you should be able:

1. Describe the composition and vertical structure of atmosphere, especially within the troposphere and stratosphere.

2. Define solar and terrestrial radiation and describe the atmospheric processes involving them within the Earth-Atmosphere system, especially their relationship to air temperature.

3. Explain the heat transfer processes that warm the lower atmosphere, especially the greenhouse effect.

4. Describe the relationships between air temperature, water vapor, dew point temperature, and relative humidity.

5. Compare and contrast the various types of fog, clouds, and weather satellites.

6. Explain how clouds develop by understanding adiabatic processes, atmospheric stability, and mechanisms that cause the air to rise.

7. Identify the processes and atmospheric conditions that form the various types of precipitation and describe how weather RADAR works.

8. Describe the forces and their relationships that cause the wind to blow.

9. List and explain the formation and features of winds like: sea and land breezes, mountain and valley breezes, down-slope winds, and the monsoon wind system.

10. Identify and describe the features of the global circulation model and compare them to the real-world wind and pressure systems.

11. List the characteristics of the various types of air masses and be able to explain the typical weather associated with them.

12. Compare and contrast weather conditions associated with weather fronts.

13. Describe the features and necessary formation conditions of middle latitude cyclones.

14. Identify features and describe the necessary atmospheric ingredients for the formation of ordinary thunderstorms, severe thunderstorms, lightning, and other severe weather events, like derechos and tornados.

15. List and explain the features and favorable conditions for the formation and sustainment of hurricanes and their associated hazards.
Instructor Information: Martin R. Martino, Professor, Chemistry and Physical Science Department  
Ferrante Hall Room F372 School phone: 315-498-2476  
School email: martinom@sunyocc.edu  
Course Website: http://myhome.sunyocc.edu/~martinom/SCI_100/index.html  
OCC Weather Website: http://myhome.sunyocc.edu/~martinom/weather.html

Office Hours: Mon and Weds: 4:30 to 5:00 PM; Tues and Thurs: 11:00 AM to 12:30 PM

Textbook: Required. Available at the bookstore (see Course Website and Blackboard).  

Grades for Non-Attendance: You may be administratively withdrawn from this course for lack of attendance/participation in graded events. For more information, see the “Grades for Non-Attendance” section (Paragraph H) within the “Policies” (Section V) of the OCC Academic Rules on the OCC Student Website.

Accommodations for Students with disabilities: The Office of Accessibility Resources (OAR) at Onondaga Community College is available to assist students who have a documented disability or who suspect they may have one. If you require an accommodation for this class please contact the office in the Coulter Library, Room C140 or at 315-498-2834. You will give me an AOR accommodation form, one copy to sign and one for me to keep for my records. The Office will state what accommodations you need and I will do everything I can to meet those requests. You will then work with the AOR testing office to schedule any graded events that you will take in their testing office. You will provide me with the testing sheet (copy or email from AOR) at least one class period prior to the scheduled graded event in order to provide me enough time to get them the graded event.

Official Means of Communication: We will use the Official OCC email (available in Blackboard) or the Blackboard Course Message function as our official means of communication.

Graded Events:

<table>
<thead>
<tr>
<th>Event(s)</th>
<th>Points</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Problem Sets</td>
<td>80</td>
<td>16 %</td>
</tr>
<tr>
<td>4 Quizzes</td>
<td>80</td>
<td>16 %</td>
</tr>
<tr>
<td>3 Lesson Block Exams</td>
<td>240</td>
<td>48 %</td>
</tr>
<tr>
<td>Final Exam</td>
<td>100</td>
<td>20 %</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>500</strong></td>
<td><strong>100 %</strong></td>
</tr>
</tbody>
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Grading Scale with % in (): A (92.0-100),  
A- (90.0-91.99), B+ (87.0-89.99), B (82.0-86.99), B-(80.0-81.99), C+ (77.0-79.99),  
C (72.0-76.99), C- (70.0-71.99), D+ (67.0-69.99), D (60.0-66.99), and F (59.99 and below)

Graded Events Policies: Your graded events will be based upon items contained in the Chapter Focuses. Total point and individual question values are listed on each graded event. Quizzes and Exams can consist of multiple choice, matching, and essay questions. The Final Exam will be held during Finals Week. It will consist of topics covered during the Weather Systems lesson block.

Missed graded events constitute a score of zero for that event. There are no make-up exams or make-up quizzes without timely coordination and the excuse must be legitimate. Notify me ahead of time or within 24 hours of the event. Please do not be late to a Quiz or Exam as they begin at the start of class. There is a time limit for each Quiz and Exam. I will post all grades on the OCC Blackboard website. If you need help using Blackboard, see me or talk to the computing center on campus.

Consequences of Cheating on Graded Events: As a college student, you are expected to do your own work. Cheating is not tolerated. Review OCC’s Academic Rules.

Problem Sets: Problem Set questions will be assigned on separate sheet of paper that will become the coversheet for the assignment. Each Problem Set will be worth 20 points and can consist of questions that pertain to that lesson block. Each Problem Set will have at least one bonus question on it. These “Bonus” questions are the ONLY way to earn “extra credit” in this course. Detailed instructions will be provided for each Problem Set.