

I. COURSE DESCRIPTION:

This course prepares pilots-in-training for writing the meteorology section of the Transport Canada Private Pilot written exam as well as enabling them to interpret weather reports and forecasts in preparation for flight. To provide a solid foundation for making good weather decisions, meteorology theory is covered in detail. This course also provides the foundation for meteorology in second and third year of the Aviation Program.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course, the student will demonstrate the ability to:

1. Understand the foundation theory required for further exploration of Meteorology.

Potential Elements of the Performance:

Moisture in the atmosphere, heating and cooling the atmosphere, stability, pressure and circulation, air masses

2. Understand the structure of Fronts

Potential Elements of the Performance:

Warm, cold and quasi-stationary fronts, frontal waves and occlusions, discontinuities across fronts

3. Understand the formation of Clouds and Precipitation

Potential Elements of the Performance:

Formation mechanisms of clouds and precipitation, classification of clouds, how clouds and precipitation affect flight

4. Understand Aircraft Icing

Potential Elements of the Performance:

Formation of airframe ice, conditions at lead to icing, aerodynamic factors, effects of airframe ice

5. Understand the factors that affect flight visibility

Potential Elements of the Performance:

Measuring visibility, Lighthometers, Precipitation, formation of fog and fog types, white out, calculate the distance to the visible horizon

6. Understand the types of boundary layer winds and turbulence

Potential Elements of the Performance:

Classification and effect of wind shear, types of winds, wake turbulence

7. Understand Altimetry

Potential Elements of the Performance:

The altimeter, the ISA, altimeter setting, drift and altimeter error, terrain clearance, combined errors, density altitude

8. Understand the formation of Mountain Waves

Potential Elements of the Performance:

formation, cloud types, mountain wave turbulence, effect on aircraft

9. Understand the formation and hazards of Thunderstorms

Potential Elements of the Performance:

the three stages, gust front, downdraft, hail, lightning, severe storm structure, classification, hazards

10. Interpret Aviation Weather Forecasts

Potential Elements of the Performance:

Graphical Area Forecasts (GFA), Terminal Area Forecasts (TAF), Upper wind and temperature forecasts (FD), Airman's Meteorological Advisory (AIRMET), Significant In-Flight Weather Warning Messages (SIGMET)

11. interpret Aviation Weather Reports

Potential Elements of the Performance:

Aviation Routine Weather Report (METAR), Pilot Reports (PIREP)

12. Interpret Weather Maps

Potential Elements of the Performance:

Surface Analysis charts, Upper air charts

III. TOPICS:

1. Foundations of meteorology
2. Structure of Fronts
3. Clouds and Precipitation
4. Aircraft Icing
5. Visibility
6. Boundary layer winds and turbulence
7. Altimetry
8. Mountain Waves
9. Thunderstorms
10. Interpret aviation weather forecasts
11. interpret aviation weather reports
12. interpret aviation weather maps

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Air Command Weather Manual
Air Command Weather Workbook
Aeronautical Information Manual (AIM)
Access to the internet is an asset

V. EVALUATION PROCESS/GRADING SYSTEM:

The student will be assessed by a combination of tests and a final exam. Weighting of each will be as follows: 50% for the tests and 50% for the final exam. The final exam will cover all material taught throughout the semester and will approximate the meteorology portion of the Transport Canada written exam. Marks will be deducted for unexcused absences (see special notes for details). In order to pass the course, a minimum grade of B must be achieved, otherwise the course must be repeated in accordance with the Aviation Standard Operating Procedures.

- In order to be excused from class due to illness or other unforeseen circumstance, students must call the professor at extension 2666 and leave a message prior to the start of class. An email is also acceptable, but must be sent prior to the start of class.
- Students may request a deferment of a test for compassionate reasons. Compassionate Grounds for deferment will include but not be limited to death of an immediate family member, personal illness, or recent diagnosis of a serious illness of a family member. **Make-ups will not be permitted after the fact for compassionate reasons.**
- Dates of tests will be announced at least 1 week in advance.

The following semester grades will be assigned to students:

Grade	<u>Definition</u>	<i>Grade Point Equivalent</i>
A+	90 – 100%	4.00
A	80 – 89%	3.00
B	70 - 79%	2.00
C	60 – 69.4%	1.00
D	50 – 59%	0.00
F (Fail)	49% and below	
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.	
NR	Grade not reported to Registrar's office.	
W	Student has withdrawn from the course without academic penalty.	

VI. SPECIAL NOTES:Attendance:

Sault College is committed to student success. There is a direct correlation between academic performance and class attendance; therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session. It is the departmental policy that once the classroom door has been closed, the learning process has begun. Late arrivers may not be granted admission to the room.

Unexcused absences will result in 2% deduction of the final mark for each occurrence, arriving for class late will result in a 1% deduction of the final mark for each occurrence, and violations of the dress code will result in a 1% deduction of the final mark for each occurrence. To avoid losing marks due to illness, you must contact the professor and leave a voice message (which is time-stamped) or an email **PRIOR TO THE START OF THE CLASS**. Calling after the class begins will indicate that the student simply slept in and was not in fact sick.

Cell phones and computers

Cell phones are not required for any part of the class activities. Texting and web use will only cause unnecessary distraction, and therefore is not allowed. Anyone using their cell phone during class may be asked to leave for the duration of the class hour. No deduction in marks will occur. Some students like to use their laptop. This is not necessary since all course material is available both in their textbooks or on LMS. Students are allowed to use them but this permission will be withdrawn if a student is caught using their laptop for non-class related use.

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VII. COURSE OUTLINE ADDENDUM:**

The provisions contained in the addendum located on the portal form part of this course outline.