



COURSE OUTLINE

AVI 105
Course Number

Aviation Weather
Course Title

3
Credits

3
Class Hours

0
Laboratory Hours

Text:

Aviation Weather AC-00-6A
United States Department of Transportation
Federal Aviation Administration
United States Government Printing Office

Aviation Weather Services AC-00-45E
United States Department of Transportation
Federal Aviation Administration
United States Government Printing Office

Turbulence – A New Perspective for Pilots
Peter F. Lester (Jeppesen-Sandersen) Latest Edition

Catalog Description:

This course provides an analysis of aviation weather, which is appropriate for a professional commercial pilot. The student is expected to gain knowledge about basic weather concepts and acquire an understanding of weather theory. Weather hazards including thunderstorms, turbulence, wind shear, restrictions to visibility, icing and hydroplaning will be discussed. Weather services will also be explained. The details of using coded weather reports, forecasts, weather charts and prognostic charts will be utilized in class for flight planning and in-flight decision-making. Extensive use will be made of Internet facilities. These are available for student use in the library.

Corequisite

ENG 101

Instructor: Jerry Kuhl: Office: BS 131

Phone: 609-570-3439

E-mail jkuhl@mccc.edu

**(Do not assume I have received your e mail unless I
acknowledge it.)**

FALL 2007 Office Hours:

Monday 2:30 to 4:00 PM

Tuesday and Thursday 2:00 to 3:30PM

Friday 10:30AM to Noon

And by appointment

Course Content

A. Weather Factors

1. The Atmosphere
 - a. Composition
 - b. Vertical Structure
 - c. Standard Atmosphere
 - d. Density and Hypoxia
2. Temperature
 - a. Temperature Scales
 - b. Heat and Temperature
 - c. Temperature Variations
 - d. Temperature Affects on Aircraft Performance
3. Atmospheric Pressure and Altimetry
 - a. Atmospheric Pressure
 - b. Altimetry
 - c. Operational Reminders
4. Wind
 - a. Connection
 - b. Pressure Gradient Force
 - c. Coriolis Force
 - d. The General Circulation
 - e. Friction
 - f. The Jet Stream
 - g. Local and Small Scale Winds
 - h. Wind Shear
 - i. Wind, Pressure Systems and Weather
5. Moisture Cloud Formation and Precipitation
 - a. Moisture
 - b. Change of State
 - c. Cloud Formation
 - d. Precipitation
 - e. Land and Water Effects
 - f. Aviation Implications
6. Stable and Unstable Air
 - a. Changes within upward and downward moving air
 - b. Stability and Instability
 - c. Interpretation weather observations
7. Clouds
 - a. Identification
 - b. Significance of cloud type to flight

B. Weather Hazards

1. Air Masses and Fronts
 - a. Air Masses
 - b. Fronts
 - c. Fronts and planning
2. Turbulence
 - a. Convective Currents
 - b. Obstruction to wind flow
 - c. Wind shear
 - d. Wake turbulence
3. Icing
 - a. Structural icing
 - b. Induction system icing
 - c. Instrument icing
 - d. Icing and cloud types
 - e. Other factors in icing
 - f. Ground icing
 - g. Frost
 - h. Implications to flight
4. Thunderstorms
 - a. Where and when
 - b. Ingredients of a thunderstorm
 - c. Life cycle
 - d. Hazards
 - e. Thunderstorm flying
5. Common IFR Producers
 - a. Fog
 - b. Low stratus clouds
 - c. Haze and smoke
 - d. Blowing restrictions to visibility
 - e. Precipitation
 - f. Obscured and partially obscured sky
 - g. Flight implications

C. Printed Reports and Forecasts

1. Printed Reports
 - a. Surface Aviation Weather Reports
 - b. Details of surface aviation reports
 - c. Pilot Weather Reports (PIREPS)
 - d. Interpretation and format
 - e. Radar Weather Reports (RAREPS)
 - f. Interpretation
 - g. Operational status
 - h. Satellite Weather Pictures

2. Aviation Weather Forecasts

a. Terminal Forecasts

1. FT (domestic)
2. ICAO Terminal Forecast (TAF)
3. Domestic Area Forecast (FA)
4. Amended Area Forecasts
5. TWEB Route Forecasts and Synopsis
6. In-flight Advisories
7. Convective sigmet
8. Winds and Temperature Aloft Forecast (FD)
9. Special Flight Forecast
10. Center Weather Advisory Service
11. Convective Outlook
12. Severe Weather Watch Bulletin

D. Graphic Weather Charts

1. Graphic charts

a. Surface Analysis Chart

1. Station model breakdown

b. Weather Depiction Chart

1. Using this chart

c. Radar Summary Chart

1. Echo type, intensity and trends
2. Echo configuration and coverage
3. Echo heights
4. Echo movement
5. Severe weather watch
6. Using the chart

d. Significant Weather Prognostic Chart

1. Domestic flights
2. Significant weather
3. 36 & 48 Hour Surface Weather Prog
4. High Level Significant Weather Progs
5. Winds and Temperature Aloft Charts
6. Composite Moisture Stability Chart
7. Severe Weather Outlook Chart
8. Tropopause Data Chart
9. Use of the many sources on the internet that have replaced the standard printed charts

Grading Policy:

30% - minimum of 3 in-class tests

40% - minimum of 3 journals

30% - final exam

All units must be completed to attain a grade.

Goals and Objectives:

This course is designed to provide an understanding of weather factors and to demonstrate how to locate and interpret weather information for the pilot. Knowledge of weather is a major part of the decision making process for a “go” or “no-go” flight and the pilot who intends to advance as a professional aviator must be aware at all times of the importance of weather assessments. The practical application of this material will be emphasized in the evaluation and testing procedures in this course.

Attendance Policy:

Students are expected to attend all classes. As stated in the College Catalog Mercer has no cut policy. If one is unable to attend a class you are expected to call 570-3439 or 3489. Three absences will lower your final grade by one letter value. More than three absences can lead to lowering your grade further or withdrawing the student from the class roster.

Academic Integrity Statement:

“A student who a.) Knowingly represents work of others as his/her own; b.) Uses or obtains unauthorized assistance in the execution of any academic work; or c.) Gives fraudulent assistance to another student is guilty of cheating. Violators will be penalized.” (Student Handbook) Violations must and will be reported to the Academic Integrity Committee.

Classroom Conduct Statement:

It is the student’s responsibility to attend all of their classes. If they miss a class meeting for any reason, students are responsible for all content that is covered, for announcements made in their absence, and for acquiring any materials that may have been distributed in class. It is expected that students be on time for all their classes. If students walk into a class after it has begun, it is expected that they choose a seat close to where they entered the room so that they do not disrupt the class meeting. Students are expected to follow ordinary rules of courtesy during class sessions. Engaging in private, side conversations during class time is distracting to other students and to the instructor. Leaving class early without having informed the instructor prior to class is not appropriate. Unless there is an emergency, leaving class and returning while class is in session is not acceptable behavior. Disruptive behavior of any type, including sharpening pencils while someone is speaking, is not appropriate. The college welcomes all students into an environment that creates a sense of community, of pride and respect; we are all here to work cooperatively and to learn together. Cell phone usage will not be tolerated, and the use of or ringing of a cell phone during a test will result in a zero grade.

CLASS SCHEDULE FALL 2007

AVI 105 SECTION 66953 12:00 PM -1:15 PM	
AVI 105 SECTION 69767 4:00 PM -5:15 PM	
TUESDAY ES 110A	THURSDAY ES110A
AUGUST 28	AUGUST 30
SEPTEMBER 4 SCHOOL CLOSED	SEPTEMBER 6
SEPTEMBER 11	SEPTEMBER 13
SEPTEMBER 18	SEPTEMBER 20
SEPTEMBER 25	SEPTEMBER 27
OCTOBER 2	OCTOBER 4
OCTOBER 9	OCTOBER 11
OCTOBER 16	OCTOBER 18
OCTOBER 23	OCTOBER 25
OCTOBER 30	NOVEMBER 1
NOVEMBER 6	NOVEMBER 8
NOVEMBER 13	NOVEMBER 15
NOVEMBER 20	NOVEMBER 22 SCHOOL CLOSED
NOVEMBER 27	NOVEMBER 29
DECEMBER 4	DECEMBER 6
DECEMBER 11	DECEMBER 13 FINAL EXAM

QUIZ AND JOURNAL DATES WILL BE ANNOUNCED

Career Prep students will have a number grade sent to their high School. They will also receive an MCCC transcript.

Grades will be assigned in accordance with the following as stated in the catalog:

Letter grade	Nominal %	QPA quality points
A	93-100	4.0
A-	90-92	3.7
B+	87-89	3.4
B	83-86	3.0
B-	80-82	2.7
C+	77-79	2.4
C	70-76	2.0
D	60-69	1.0
F	0-59	0.0
S	70-100	NA
NC	0-69	NA