DeAnza College
Physical Sciences, Mathematics & Engineering Division
Winter Quarter 2016

Meteorology 10L
"Meteorology Laboratory"

Class times
& Location: Section 06   Call # 33131   11:30 a.m.-12:45 p.m.   Mon & Wed

Instructor: Paul J. Olejniczak (Oles)
Office: S48A
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Email: olejniczakpaul@deanza.edu
Office Hours: 9:30-10:15 a.m. MTWThF & 12:00-1:00 p.m. TTh

Textbook: "Online Weather Studies Investigations Manual" Ebook
                        American Meteorological Society, 2014-2015 Edition

Class Website: olespaul.com

Course Description:

Meteorology 10L is an introductory laboratory course in which students work with observational data, graphics products and weather instruments used by synoptic meteorologists to forecast weather. Students will observe the workings of the dynamic atmosphere seeing the scientific principles of meteorology in action and practice the analysis and decision-making skills employed by meteorologists to diagnose weather patterns, understand air motions and predict future atmospheric conditions.

Laboratory sessions will include current weather data and graphics products downloaded from the American Meteorological Society's "Online Weather Studies" homepage on the Internet which has been specifically designed for this course and from the DeAnza Campus's automated Weather Station.

Evaluation:

A student's grade will be based on the submission of completed weekly laboratory exercises.

Letter Grades:

A	= 89% +		B	= 79-88%
C	= 69-78%%		D	= 59-68%
F	= 0-58%			

Lab Schedule: (Date below indicates … "The Week of Monday, Apr 8 etc.)

Jan 04   **Orientation and Review of Class Syllabus**
Mon   **A Review of Online Class Resources**
                  A Look at DeAnza Campus's Weather Stations & Instrumentation
                  Lab Exercise : "Surface Air Pressure Patterns"
                  Draw isobars on a surface weather map and interpret isobar patterns

Lab Exercise : "Air Pressue and Wind"

Jan 11
Mon
Lab Exercise : "Air Pressure & Wind"
Apply the hand-twist model to surface winds in high and low pressure systems
Lab Exercise : "Surface Weather Maps"
Decode symbols on a surface weather map and interpret weather conditions.

Jan 18
Mon
Holiday – No Lab

Jan 20
Wed
Lab Exercise : "The Atmosphere in the Vertical"
Plot a sounding on a Stuve diagram and compare it to U.S. Standard Atmosphere.
Lab Exercis3A: "Weather Satellite Imagery"
Compare visible and infrared satellite images for weather interpretation.

Jan 25
Mon
Lab Exercise : "Sunlight throughout the Year"
Describe variations in solar radiation throughout the year by latitude.
Lab Exercise : "Temperature & Air Mass Advection"
Draw isotherms on a surface map and determine areas of warm and cold air advection.

Feb 01
Mon
Lab Exercise : "Heating-Degree-Days & Wind Chill"
Calculate heating and cooling degree-days and determine wind chill.
Lab Exercise : "Air Pressure Change"
Use a meteogram to describe changes in air pressure and other weather conditions with the passage of a cold front.

Feb 08
Mon
Lab Exercise : "Air Pressure in the Vertical"
Use the pressure block concept to demonstrate the influence of air density and air temperature on changes in air pressure with altitude.
Lab Exercise : "Clouds, Temperature & Air Pressure"
Use cloud-in-a-bottle demonstration to illustrate how temperature changes are related to pressure changes.

Feb 15
Mon
Holiday – No Lab

Feb 17
Wed
Lab Exercise : "Rising & Sinking Air"
Use a Stuve diagram to illustrate dry and saturated adiabatic processes as air parcels ascend and descend in the atmosphere.
Lab Exercise : "Precipitation Patterns"
Locate and track areas of precipitation using weather radar operating in the reflectivity mode

Feb 22
Mon
Lab Exercise : "Doppler Radar"
Describe the wind pattern detected by Doppler radar for a severe weather situation.
Lab Exercise : "Surface Weather Maps & Forces"
Examine the influences of forces on horizontal air motion near the Earth's surface.

Feb 29
Mon
Lab Exercise : "Upper-Air Weather Maps"
Describe the properties of a 500 millibar map analysis and identify highs, lows, ridges and troughs.

Lab Exercise : "Westerlies and the Jet Stream"
Examine upper-air westerly wave patterns, the jet stream and how these features influence midlatitude surface weather.
Lab Exercise : "El Nino: Atmopshere & Ocean Interactions"

Mar 07	**Lab Exercise :** "The Mid-Latitude Cyclone"
Mon	Describe weather conditions surrounding the center of a typical midlatitude cyclone.
	Lab Exercise : "Cyclone Track Weather"
	Compare weather conditions on either side of a mature midlatitude cyclone.

Mar 14
Mon   **Open Date – Makeup Lab**

Rules & Regulations:

Regular class attendance is required. Class attendance will be recorded each class period. Students missing three (3) consecutive labs will be dropped from the class.

The use of cell phones or pagers is strictly forbidden during class unless prior arrangements have been made with the instructor.