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

Meteorology 10L
"Meteorology Laboratory"

Class times & Location:	**Section 01**	**Call # 42885**	**11:30 a.m.-12:45 p.m.**	**Mon & Wed**

Instructor: Paul J. Olejniczak (Oles)
Office: S48A
Phone: 408-864-8676
Email: olejniczakpaul@deanza.edu

Office Hours: 10:30-11:15 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.)

Apr 04 Mon
Orientation and Review of Class Syllabus
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"

Apr 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.**
Apr 18 Mon	**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.**
Apr 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.**
May 02 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.**
May 09 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.**
May 16 Mon	**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**
May 23 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.**
May 30 Mon	**Holiday – No Lab**
Jun 01 Wed	**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"**

Jun 06	**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.
Jun 13	**Lab Exercise: "Westerlies & the Jet Stream"**
Mon	**Describe the Global Planetary Circulation of the Atmosphere.**
	Makeup Lab

<u>Rules & Regulations</u>:

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.