PHYSICAL METEOROLOGY		Dr. Miller	ENR 233
1	Tues		Intro and Thermodynamics Review
2	Fri	**Cloud Microphysics**	Bringing Air to Saturation
3	Tues		Cumulus Entrainment
4	Fri		Hydrometeor Types
5	Tues		Homogeneous Nucleation of Cloud Particles
6	Fri		Heterogeneous Nucleation of Cloud Particles
7	Tues		Atmospheric Aerosol Particles
8	Fri		Diffusional Growth of Liquid and Ice
9	Tues		Precipitation Processes
10	Fri		Cloud Electrification and Auroas
11	Tues	**Atmospheric Radiation**	
12	Fri		Elements of Radiation
13	Tues		Blackbody Radiation
14	Fri		
15	Tues		Scattering, Absorption
16	Fri		Visibility and Meteorological Optics
SPRING BREAK			
17	Tues		Emission and Schwarzchild's Equation
18	Fri		
19	Tues		
20	Fri		Heating Rates and Global Radiation Balance
21	Tues	**Atmospheric Boundary Layer**	
22	Fri		Turbulence
23	Tues		
24	Fri		The Surface Energy Budget
25	Tues		
26	Fri		Vertical Structure of Boundary Layer
27	Tues		Evolution of Boundary Layer
28	Fri		
Final		**Comprehensive**	

6 Quizzes	60%	**Policies**
Homeworks	15%	Late Homework Penalty: 25% per day and 100% after day 2
Final Examination	25%	Late Quiz Penalty: no make-up quizes
		Office Hours: Wednesday BY APPOINTMENT

Text: Mostly Cloudy (Lasher-Trapp), Atmospheric Radiation (Petty), Practical Meteorology (Stull)

Learning Goals:

(1) Exhibit critical thinking when confronting new information
(2) Apply the mathematical and physical foundations of Meteorology and Climatology to solve problems using analytical and computational metho
(3) Exhibit a working knowledge of cloud droplet and ice crystal formation
(4) Understand the physics leading to the formation of precipitation
(5) Exhibit a working knowledge of the transfer of shortwave and longwave radiation in the atmosphere
(6) Be able to explain the basic physics of light scattering by small particles
(7) Demonstrate the ability to explain the reasons for the spectrum of colors observed in the sky
(8) Be able to identify observable optical phenomena and explain the underlying physics
(9) Exhibit a basic understanding of boundary layer structure and turbulence