ATOC 1050 Section 001 Spring 2011
Exam #1 Review Sheet

1. Chapter 1 – Properties of the Atmosphere
    a. Composition and vertical structure (layers) of the atmosphere
    b. Temperature (and temperature scales, converting between C, F, K)
    c. Seasons (cause of seasons; factors that make seasons differ from equator to poles)
    d. Pressure (local surface pressure vs. mean sea level pressure)
    e. Moisture (absolute and relative variables; saturation)
    f. Latent Heat transfer (phase changes as warming or cooling process)
    g. Wind (reading winds on weather maps; definition of wind direction)
2. Chapter 2 – Meteorological Measurements
    a. UTC time (converting between MDT or MST and UTC)
    b. Surface measurements (what they measure; interpret meteogram)
    c. Rawinsondes (frequency; what they measure)
    d. Soundings (recognize features on sounding)
    e. Radar (what does radar measure; dBZ; what factors determine radar reflectivity; Doppler radar concept; interpret reflectivity image)
    f. Satellite imagery (types; interpreting each type)
3. Chapter 3 – Weather maps
    a. Surface station model (interpret; decode sea level pressure)
    b. Contour maps (definition of various lines of constant pressure, wind, temperature, dew point temperature; interpreting temperature and pressure gradients; definition of vorticity, jet stream, jet streak)
    c. Constant pressure maps (definition of trough/ridge; frequency)
    d. Upper air station model (interpret; know how different from surface model; decode dew point temperature)
4. Chapter 6 – Atmospheric Stability/Clouds
    a. Concept of stability (stable, neutral, unstable)
    b. Air parcel expansion/compression with vertical movement
    c. Adiabatic process (definition; warming or cooling with compression or expansion)
    d. Lapse rate (definitions and values of dry adiabatic, moist adiabatic, environmental lapse rates; why do the dry and moist adiabatic lapse rates differ; how do we measure environmental lapse rate)
    e. Inversion (definition; sign of lapse rate)
    f. Determining stability (compare lapse rates; conditional instability)
    g. Concepts of convection, lifting condensation level, level of free convection
    h. Lifting mechanisms (know types and situations where each might occur)
    i. Clouds (how do clouds form; key ingredients)
    j. Cloud types and categories (definitions; recognize each type by description)