**ATOC 3500/CHEM 3151**

**Problem 1**

**Lecture 1**

The pressure of Earth’s atmosphere at sea level is defined as “1 atmosphere,” or 1 atm. Atmospheric chemists rarely use ‘atmosphere’ as their primary unit, and instead, they use different units depending on the nature of the problem they are solving.

All of the following are equivalent to 1 atm:

1013 millibar (mbar)

101300 Pascals (Pa)

760 Torr

14.7 pounds per square inch (psi)

29.92 inches of mercury (inHg)

Derive conversion factors to convert from mbar into each of the different units below:

Example: To convert from atm to mbar:

1013 mbar = 1 atm

So: P(in atm) x 1013 = P(in mbar)

Conversion factor = 1013 mbar/atm

1. To convert from atm to Pascals (Pa):

Conversion factor = \_\_\_\_\_\_\_\_ Pa/atm

1. To convert from atm to Torr:

Conversion factor = \_\_\_\_\_\_\_\_ Torr/atm

1. To convert from atm to psi:

Conversion factor = \_\_\_\_\_\_\_\_ psi/atm

1. To convert from atm to inHg:

Conversion factor = \_\_\_\_\_\_\_\_ inHg/atm