**ES302 Quantitative Methods Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Reading Review Questions – Introduction to Structural Geology Techniques**

Read Twiss and Moores, Chapter 2 entitled “Techniques of Structural Geology and Tectonics”, pages 11-15 only, and answer the following review questions. Include definitions, answers, sketches and images; as required below. Download reading at the following URL: <https://people.wou.edu/~taylors/g302/TM_chap2_Techniques.pdf>

1. Read the introductory paragraph, summarize why it is important to be able to measure the orientations of geologic features as lines and planes in 3-dimensional space.
2. List and define the types of geologic structures that are best represented as planar features. Using your internet browser search tools, provide example field images of each.
3. List and define the types of geologic structures that are best represented as linear features. Using your internet browser search tools, provide example field images of each.
4. Define the following structural geology terms:
   1. Attitude
   2. Strike (provide a sketch or image)
   3. Dip (provide a sketch or image)
   4. Plunge (provide a sketch or image)
5. True or False: dip is expressed an angle of inclination, strike is expressed as an azimuth compass orientation.
6. True or False: dip angle is always measured parallel to strike direction.
7. Discuss the differences between the “Quadrant” and “Azimuth” methods of measuring compass bearings.

Fill in the table below, convert the compass bearings from either Azimuth to Quadrant; or Quadrant to Azimuth, as indicated by the answer slots.

Azimuth Quadrant

\_\_\_\_\_\_\_ N. 60 E.

\_\_\_\_\_\_\_ N. 20 W.

\_\_\_\_\_\_\_ S. 37 W.

\_\_\_\_\_\_\_ S. 63 E.

\_\_\_\_\_\_\_ N. 90 W

45 \_\_\_\_\_\_\_\_

137 \_\_\_\_\_\_\_\_

243 \_\_\_\_\_\_\_\_

310 \_\_\_\_\_\_\_\_

90 \_\_\_\_\_\_\_\_

1. Examine Figure 2.1, and how to construct a graphical strike and dip symbol. Assuming North is parallel to the edge of the page and towards the top, in standard map orientation. Based on the strike and dip measurements provided below, using a protractor, draw and label the strike and dip symbol associated with each.

**North**

**^** Strike 145o Dip 55o NE

**|**

**|** Strike 73o Dip 30o NW

**|**

**|** Strike 223o Dip 10o NW

1. Examine Figure 2.3 and the associated explanation of vertical exaggeration on p. 15. Draw sketches and describe the concept of vertical exaggeration in cross-section construction, and how it affects scaling dimensions of such drawings.