**ES302 Quantitative Methods Reading Review Exercise NAME\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Read the Text Reading entitled “Chapter 2 – Digital Elevation Models and Representation of Terrain Shape”, answer the following questions and define the following terms. Provide sketches or images where required.**

1. Define the acronym “DEM”? Why have they become an important asset in geoscience?
2. Examine Figure 2.1 – list the main tasks associated with digital terrain modeling?
3. What is DEM resolution? Examine Table 2.1, provide some examples various natural features that are best represented at varying DEM resolutions and spatial scales.
4. List and briefly describe the three main classes of soruce topographic data.
5. Data interpolation is the process of numerical estimation, a method of constructing new data points within the range of a discrete set of known data points; for example estimating the elevation of a location positioned on a hillslope between two known points of elevation. Given that definition, list and briefly describe the three mail DEM Interpolation Methods.
6. Describe the process of DEM filtering and why it is necessary.
7. True or False: All DEMs are highly accurate and representative of the true shape / elevation of the Earth’s surface.
8. Briefly describe and define the following terms, provide equations and sketches where necessary to illustrate your answer:
   1. Slope
   2. Profile Curvature
   3. Aspect