**RMapping Terms:**

Coordinate reference systems (crs) – spatial representation of objects (the rules of how to map it)

EPSG registry – number for each CRS

* 4326 – geographic coordinate system (spherical)
* 29616 – projected coordinate system

Geographic coordinate system – spherical

* Longitude/Latitude – used position on spherical surface (north/south of equator and east/west of meridian)

Projected coordinate system – 2D – taking the sphere and putting it on a plane

* Northing/Easting – the y (northing) and x (easting) coords of the 0 point
* Universal Transverse Mercator (UTM) – way to divide the Earth – where to start the 0 point – used as the starting point for the projected coordinate system
  + Lansing is in UTM 16N or (more specifically) 16T

Datum – every CRS has datum – the rules of the CRS

Questions:

1. Why do we need to use different datums?

You need to choose a datum that represents the data that you wish to represent. You must decide whether spherical or 2D and choose a CRS that includes your area of interest. Because the world is not an exact sphere, using a CRS not representative of the area will introduce error into your positions.

1. What is a false northing/easting? Why is this used?

These are the linear values added to all x and y coords (northing / eastings) so that none of the values are negative. The point of origin of each UTM zone is the intersection of the equator and the central meridian of each zone.