Computing Centroids in ArcGIS (see ‘Help: Making Field Calculations’)

**What’s a centroid?**
- **Centroid**: a polygon’s mean center which is based on the weighted average of its x and y coordinates; a useful way to summarize the locations of a set of points, particularly when used for comparative analysis.
- On the uses of centroids in GIS, see http://www.gsd.harvard.edu/gis/manual/vector/.
- **Use centroids only if the features are roughly the same size and shape** (see, e.g., Mitchell, The ESRI Guide to GIS Analysis, vol. 2).

**Computing centroids** (see ArcMap Help: centroids):
- Inspect the attribute table.
- If the attribute table does not already have a column for the ‘X’ and a column for the ‘Y’ coordinates, add these fields (type=double, precision=10, scale=4).
- The ‘X’ and ‘Y’ columns are initially populated with 0’s.
- Do the following for the ‘X’ column:
  - Right-click column.
  - Click *Calculate Values* (outside of an edit session).
  - Click *Advanced*.
  - In top text box type the following (or load the ‘CentroidsX_calc’ formula from the course web site; click ‘Load’ in the dialogue box):
    ```vba
    Dim dblX As Double
    Dim pArea As IArea
    Set pArea = [Shape]
    dblX = pArea.Centroid.X
    ```
  - In the bottom text box type the following:
    ```vba
    dblX
    ```
  - Click OK.
- Repeat for the ‘Y’ column, changing the X’s to Y’s (or load the ‘CentroidsY_calc’ formula).
- The calculations have assigned centroid values to the ‘X’ and ‘Y’ columns.
- **From within the attribute table**, click *Options/Export* (i.e. not from a layer in the table of contents but *from within the attribute table itself*). Then list the path and type a name for a newly created table containing the centroids.
- In the table of contexts, click *Source* to display the centroids table.
- Click *Tools* (not ArcToolBox!)/AddXY Data, and specify the projection of the original data from which the centroids were derived. This will change the centroids dots from one to two dimensional.
Via Symbology for the centroids layer you can adjust the symbol size and color, including to one-dimensional black dots (e.g., smaller size may display better on map).