

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):

Dim dbIX As Double
Dim pArea As IArea
Set pArea = [Shape]
dbIX = pArea.Centroid.X
 - In the bottom text box type the following:

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).