Density [1]:

$$\Delta = \sum \frac{C_D(n_i)}{g(g-1)}$$

Average Degree [1]:

$$\overline{C}_D = \sum \frac{C_D(n_i)}{g}$$

Betweenness Centrality [1]:

$$C'_B(n_i) = \frac{\sum_{j<k} \frac{g_{jk}(n_i)}{g_{jk}}}{\frac{(g-1)(g-2)}{2}}$$

Betweenness Centralization [1]:

$$C_B = \frac{\sum_{i=1}^{g}[C'_B(n^*) - C'_B(n_i)]}{g-1}$$

Modularity [2]:

$$Q = \sum_i (e_{ii} - a_i^2)$$

Where:

$C_D(n_i)$ = number of links an actor has in the network

g = number of actors in the network

g_{jk} = number of shortest paths connecting two actors

$g_{jk}(n_i)$ = number of shortest paths connecting two actors that include actor i

$C'_B(n^*)$ = largest betweenness centrality in the network

e_{ii} = fraction of links connecting actors in the same discipline

a^i = fraction of links connecting to actors in discipline i

[1] Wasserman S, Faust K. Social network analysis: Methods and appilcations. Cambridge: Cambridge

Univsity Press; 1994..

[2] Newman MEJ, Girvan M. Finding and evaluating community structure in networks. Phys Rev E Stat

Nonlin Soft Matter Phys. 2004. doi: 10.1103/PhysRevE.69.026113