

Spatial Ecology Workshop (Quiz 5 - Key)

Student: _____

Grader: _____

1) You calculated the global and local Moran's I values with Rookcase and got this result:

H	I	J	K	L
Lag Number	Sum of Locall	Sum of Num. Neighbours	Constant of Proportionality	Global Moran's I
1	26.71	48	0.02	0.56

How was the constant of proportionality calculated? (+1 point) $0.02 = 0.56 / 26.71$

How does this constant help us to translate the global and local Moran's I results? (+1 point)

Because local spatial autocorrelation Metrics (I_i and C_i) are proportional to the global I and C , they can be used to determine the relative contribution of specific locations to global SA. This property is not shared by the Ord-Getis G and G^* statistics

Fill in the cells below for this small dataset. Use the Z-scores to determine if the local Moran's I values are significant for each cell. If the coefficient of proportionality for this dataset is 0.1. calculate the scaled local Moran's I values (+0.25 points each).

Samples	Local Moran's I	Z-score	Significant (Y / N)	Scaled Moran's I
1	1.5	1.96	Y	+0.15
2	0	0.5	N	0.00
3	0.5	0.75	N	+0.05
4	-0.5	-1.96	Y	-0.05

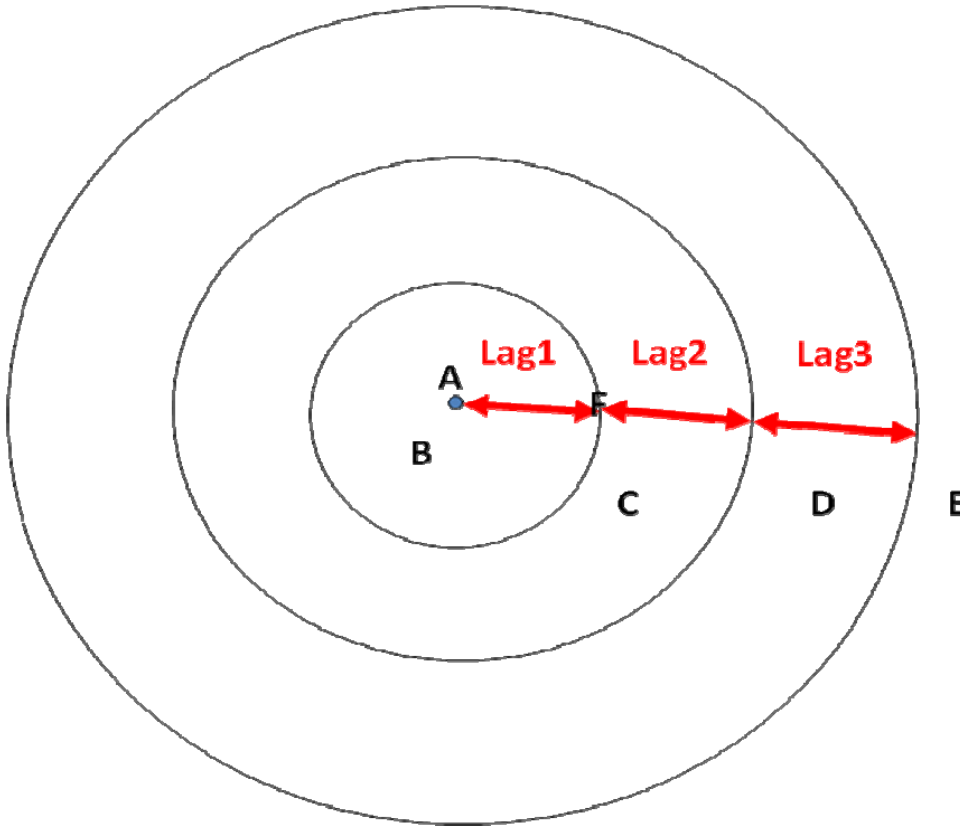
The global Moran's I for this dataset is: $0.15 = 0.15 + 0.05 - 0.05 + 0.00$ (+1 point)

2) Match the answers (A, B, C, D, E, F) with the two definitions (I, II) (+0.25 points each):
(Note: You can use the same letter multiple times. You can give up to 8 answers)

- A – Significance can be assessed using the Z-score
- B - One value calculated for each sample
- C - Value cannot be larger than +1
- D - Values can be larger than +1
- E - One value calculated for the entire study (or landscape)
- F - Value equals 0 when data are not correlated

I – Local Moran's I: **A B D F** II – Global Moran's I: **A C E F**

- 3) For each lag distance and method (mutually exclusive OR cumulative), list which samples would be considered “connected” to the reference sample (A), marked with a blue circle. Note: there are 5 samples (B, C, D, E, F).



Note: point F is exactly at a distance of lag1 from A

Mutually – Exclusive Lags: (+0.25 points per entry)

Distance	Number of Pairs	List Pairs
Lag1	2	A-B, A-F
Lag2	1	A-C
Lag3	1	A-D

Mutually – Cumulative Lags (+0.25 points per entry)

Distance	Number of Pairs	List Pairs
Lag1	2	A-B, A-F
Lag2	3	A-B, A-F, A-C
Lag3	4	A-B, A-F, A-C, A-D