

CC: 4.3.1: Introduction to Network Analysis

Introduction to Network Analysis: Question 1

1/1 point (graded)

What is a path in a network?

An edge

A generalized edge that connects distant nodes

A sequence of edges connecting two nodes
correct

Introduction to Network Analysis: Question 2

1/1 point (graded)

What is a connected component in a network?

A group of nodes and their edges for which a path exists between each node in the component
correct

Any subgroup of nodes

The set of either nodes or edges in the network

CC: 4.3.2: Basics of NetworkX

Basics of NetworkX: Question 1

1/1 point (graded)

Consider the following code:

```
G = nx.Graph()  
G.add_nodes_from(1,2,3,4)
```

```
G.add_edges_from((1,2),(3,4))  
G.number_of_nodes(), G.number_of_edges()
```

What does this return?

4, 4

4, 2

4, 0

1, 0

This code contains an error.
correct

Explanation

`add_nodes_from` and `add_edges_from` take only a single iterable argument each.

CC: 4.3.3: Graph Visualization

Graph Visualization: Question 1

1/1 point (graded)

How many nodes and edges are included in the karate club network (as described in [Video 4.3.3](#))?

You can use `G = nx.karate_club_graph()` to create the graph.

14 nodes, 28 edges

33 nodes, 28 edges

33 nodes, 70 edges

34 nodes, 78 edges

correct

Graph Visualization: Question 2

1/1 point (graded)

What does `G.degree(0)` is `G.degree()[0]` return?

True

correct

False

Graph Visualization: Question 3

1/1 point (graded)

Which function in `networkx` (imported as `nx`) plots a network?

`nx.plot`

`nx.draw`

correct

`nx.graph`

`nx.Graph`

CC: 4.3.4: Random Graphs

Random Graphs: Question 1

1/1 point (graded)

How many components do you expect in an Erdős-Rényi graph with `n=10` and `p=1`?

You can use `nx.erdos_renyi_graph()` to create the graph.

0

1

correct

10

Because it's a random graph, it depends on the given realization.

correct

Explanation

$p=1$ means an edge exists between each node pair, making the network consist of one component.

Random Graphs: Question 2

1/1 point (graded)

How many components do you expect in an Erdős-Rényi graph with $n=10$ and $p=0$?

0

1

10

correct

Because it's a random graph, it depends on the given realization.

Explanation

$p=0$ means the network will contain no edges, so each node is also its own component.

CC: 4.3.5: Plotting the Degree Distribution

Plotting the Degree Distribution: Question 1

1/1 point (graded)

Consider the following code:

```
D = {1:1, 2:2, 3:3}
plt.hist(D)
```

What will this plot?

A flat histogram with bins at 1, 2, and 3

A histogram with with bins of increasing height at 1, 2, and 3

This code contains an error.
correct

Explanation

`plt.hist` does not take dictionaries a single argument.

Plotting the Degree Distribution: Question 2

1/1 point (graded)

How do the degree distributions

in `nx.erdos_renyi_graph(100, 0.03)` and `nx.erdos_renyi_graph(100, 0.30)` compare?

The latter distribution has a greater mean on average.
correct

The former distribution has a greater mean on average.

The means are approximately the same.

CC: 4.3.6: Descriptive Statistics of Empirical Social Networks

Descriptive Statistics: Question 1

1/1 point (graded)

As described in [Video 4.3.6](#), which network has more nodes?

G1

G2

correct

Descriptive Statistics: Question 2

1/1 point (graded)

As described in [Video 4.3.6](#), which network has more edges?

G1

correct

G2

CC: 4.3.7: Finding the Largest Connected Component

Finding the Largest Connected Component: Question 1

1/1 point (graded)

For an iterator object `X`, what does `X.__next__()` do?

Returns the next value in `X`, if it exists
correct

Returns the next iterator, if it exists

Moves on to the next line of code

This code contains an error.

Finding the Largest Connected Component: Question 2

1/1 point (graded)

For a given network `G`, what does `len(G)` return?

The length of the longest path

The size of the largest component

The number of nodes
correct

The number of edges

A list of nodes in each component

Finding the Largest Connected Component: Question 3

1/1 point (graded)

Graphs **G1** and **G2** are defined as in [Video 4.3.7](#).

Which graph contains the largest connected component?

G1

correct

G2

Finding the Largest Connected Component: Question 4

1/1 point (graded)

Graphs **G1** and **G2** are defined as in [Video 4.3.7](#).

Which graph contains the greatest fraction of its nodes in its largest connected component?

G1

correct

G2