COSC150 ICA 23 April 2020 Name/Pledged\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(Open Book/Notes allowed for rework)

We started this course by asserting that scientists communicate in two basic ways: drawing pictures and telling stories. We’ve spent several weeks doing that!

Do your best to answer the following, then send me back ([panoffrm@wofford.edu](mailto:panoffrm@wofford.edu)) a PDF of your answers.

1. A model that has at least one element of randomness can be described as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. A model whose behavior depends solely on its parameter values and the initial conditions can be described as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. Consider the following simple ***system model*** of the spread of a communicable disease:

A close up of a map

Description automatically generated

* 1. Identify the 4 basic components (building blocks) of system models
  2. Convert the above drawing of a system model to a story, consistent with the model of the spread of a disease. Be as complete as you can. Include a sketch a typical graph of the S-I-R components.:

1. In an agent-based model, we always start with a well-told story using sentences that are of the form: If . . . . . . Then . . . . .
   1. What are the 4 basic components of the stories of most agent-based models?
   2. Tell me a good agent-based model story of the spread of a communicable disease, including movement, catching the disease, and one or more ways to recover:
2. List as many of the characteristics of System Models and Agent Models that you remember that distinguish one from another:

SYSTEM MODELS AGENT MODELS

1. In class and lab, we explored several different agent-based models and programming environments to study the spread of a contagious disease. List as many “adjustable parameters” as you remember that were in the models, ***and*** identify how a change in each parameter/property of the agents or world speed up or slow down the spread of a contagious disease.
2. (non-graded) The course has only a few weeks left!
   1. What is something new you have learned so far?
   2. What is one topic that you would like to learn, or learn more of, before the course is over?