

Applied Math Modeling Take Home Final (Spring 2018)

Name:

Directions: All work should be your own. Any cooperation or collusion between students will result for an F for the exam and an F for the course.

This is in two parts. Submit all electronically.

1. Use the final Togolese models to calculate the max temperature, min temperature, and rainfall for a hypothetical city .5 degrees north and .5 degrees east of your Togolese city for the months of 2010. Assume that the elevation is 100 meters.

Provide whatever code you used to do the calculations.

2. Transform my InsightMaker model for the chaotic beetles to reproduce the dynamic and chaotic results of page 60. The parameter values are at the bottom of this Mathematica file.
 - a. Using initial populations of 10 for each of the three populations, and the c_{pa} values of figure 1.20, provide 10 values of the larvae population following the 500th iteration (501-510) for each of the four c_{pa} values in a single table. (You can find those values in one of the displays, which is a table.)
 - b. Has the population settled into a cycle? If so, what's the length of the cycle?

Also provide a link to your InsightMaker model.

Good luck!