

## COVID-19 Models

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The programs in this zip file are implementations in the report **Modeling and Battling COVID-19** by George Markowsky. That report and the programs can be found at [www.DrGM.us](http://www.DrGM.us). There is a simple Python program that computes the values associated with the SIR model and graphs them. The Python program presented here has no frills and just does the arithmetic and graphing. There are many free sources of instruction for learning Python, so we will not elaborate on the program here.

We have also included an Excel worksheet that shows how to compute roughly 300 values of  $s$ ,  $i$ , and  $r$  and how to plot them using Excel graphing functions. The worksheet makes it easy for non-programmers to construct their models. Note that we have used fixed values for the constants  $a$ ,  $b$ , and  $c$  that are described in the report. It is easy to introduce different sets of values for  $a$ ,  $b$ , and  $c$  for different days so the model can display the effects of changing these constants.

All of these modifications are left to the reader – they are simple modifications of the code presented here.