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Unlocking the Differential Equations in Covid-19 data. Preliminary report.

The first step in modeling is often the hardest: Identifying the functional form of the model. Covid-19 infection data provide an important setting in which to do this, allowing for estimates of parameters of public importance. Using Covid-19 data from around the world, this talk will give examples of the identification of exponential, logistic, and Gompertz growth. As can be done in Calculus II or Introductory Differential Equations, we estimate the relative growth rate from the data and study its behavior to identify possible models. (Received September 13, 2020)