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Theoretical & Computational Biophysics

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The project explores the interlinked of biophysics, biomathematics and biostatistics; and further examine the application of deterministic models in biological systems using COVID-19 as a case study. The deterministic model, which utilizes the classical SEIR epidemic modeling framework, is used to determine the transmission dynamics of the COVID-19 epidemic. The objective of the project is to develop a deterministic model of COVID-19 and fit it to South Africa's COVID-19 data in order to gain insight into infectious disease dynamics by translating mathematical results back to biology and by using numerical algorithms to study the physical principles behind infectious diseases. The fitted model was found to fit the recovered group data well, but not the infected group. Hence, the importance of fitting the data for COVID-19 modeling, allows researchers and policymakers to use the models for predictions and inform decision-making. However, this model needs to be improved in order to fit the data.

Apply to be considered for a student ; award (Yes / No)?

N/A

Level for award;(Hons, MSc, PhD, N/A)?

N/A

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