

COT 6410 Project

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Title: Computational modeling of biology

Abstract:

Computational models play an increasing role in the advancement of science and have a position as a useful complement to laboratory experiments. It has become essential for researchers to understand computational modeling, what it means to model something, and how models work. Here, we provide an overview of computational models and their potential uses. We discuss the importance of computational modeling and provide examples of where and how modeling is useful, and we also show the drawbacks and limitations that are associated with them. It is important to understand that computational models are not accurate representations of the phenomena they are shaped after nor scientific tools, and they are limited by the underlying complexity of the procedures they perform. They cannot replace experiments nor prove that particular behavior is caused by specific variables, however the insight provided by a well constructed computational model can be used to disprove or identify incomplete or incorrect representations of physical systems.