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Agent-based models of interacting populations

Agent-based models, also called individual-based models, are computer-based models that simulate the actions and interactions of autonomous agents that represent the individuals of the population. These models are powerful simulations that can capture the emergent phenomena of a natural system. These types of models have been applied to many different areas of research such as ecology, e.g., white-tailed deer and panther populations in South Florida, and epidemiology, e.g., human disease outbreaks in a realistic urban area. One of the most beneficial aspects of these models is that they are easily understood and explainable to both math and biology students. A framework for teaching how to develop an agent-based model and examples of such models will be presented.