

Theory Development

Reading for Class #21: Monday, Nov 03, 2025

Contents

Reading: 1

Reading:

Required Reading (everyone):

- Agent-Based and Individual-Based Modeling, Ch. 19.

Optional Extra Reading:

- Modeling Social Behavior, Ch. 8.

Reading Notes:

There is an implementation of the wood hoopoe model, suitable for Exercise 2, on the class web site: https://ees4760.jgilligan.org/files/models/chapter_19/ch19_ex2_wood_hoopoes.nlogo

The optional chapter from *Modeling Social Behavior* discusses other approaches to using agent-based models to do science. The readings from Railsback & Grimm focus on the methodology of Pattern-Oriented Modeling. This chapter looks at other ways of thinking about connecting agent-based models to scientific methods. The focus here is on statistical analysis of experimental results and the use of Bayesian statistical methods to identify and avoid pitfalls where experiments may fool researchers into drawing the wrong conclusion (e.g., thinking a hypothesis is true, when it's really false).