

Introduction & Methods/Model Sections

Step 1 Reading questions for first reading of Introduction and Methods/Model sections of modeling papers

- For each paper, what type of information is contained in the Introduction?
- For each paper, what questions are the authors trying to address by constructing their model?
- For each paper, how is the model presented in the paper? Comment on the use of textual description and graphical depiction. Comment on the use of lists and tables for parameters and assumptions. When, where, and how are any tables referenced within the text of the article?
- For each paper, what are the states of the models? What variables are used to describe each state?
- For each paper, what are the model parameters? How are they presented in the paper?
- For each paper, where are the model assumptions stated in relation to the presentation of the model equations? Are there underlying assumptions that have been made and not explicitly stated?
- In light of your answers to the above questions, describe who you think the intended audience is for each paper.
- For each paper, is there any content that is unclear? Be specific.

Step 2 Reading questions for a second reading of the Methods/Model sections of modeling papers

- For each paper, what is the depth of the explanation of the mathematical method being described?
- For each paper, what do the authors assume the reader knows?
- For each paper, what references do the authors point the reader towards within the description of the method/model?
- For each paper, what additional information would you need (if any) to fully understand the description of the methods used to analyze the model?

Step 3 Reading questions for a second reading of the Introduction and Methods/Model sections of modeling papers (things to think about when you go back and fully flush out an Introduction Section)

- For each paper, how many other papers are referenced within the introduction? What proportion of these references are made to support statements about the biology of the system in question? What proportion of these references refer to papers describing other mathematical models? You may have to read through the abstracts of some of the referenced papers to determine the nature of the referenced paper.
- For each paper, how many other papers are referenced within the model description sections? What proportion of these references are made to support statements about the biology of the system in question? What proportion of these references refer to papers describing other mathematical models? You may have to read through the abstracts of some of the referenced papers to determine the nature of the referenced paper.
- What are some common themes found in each of the introductions? Identify at least three common themes.

Methods/Model & Results Sections

Step 1 Reading questions for Methods/Model and Results sections of modeling papers

- There are two models proposed in [...]. Describe the different between the models. Additionally, what are the states of each model? What are the parameters for each model?
- For each paper, describe how the authors present the models and the parameters. Comment on the use textual descriptions as well as graphics and tables. Are each of these used effectively? Why or why not?
- In each of the papers, how do the authors handle parameter uncertainty? How do the authors display how the parameter uncertainty effects the model's state variables?
- For each of the papers, describe how the results are presented?
- For each paper where parameter uncertain was examined, how do the authors visually or tabularly display the variability in of the model's dynamics generated through the uncertainty analysis? How do the authors describe the results of the uncertainty analysis within the text?
- For each paper where model sensitivity to parameter uncertainty was examined, how do the authors visually or tabularly display the results of the sensitivity analysis? How do the authors describe the results of the uncertainty analysis within the text?
- In the results section(s), when, where, and how are tables and figures referred to?

Step 2 Reading questions for the Methods/Model and Results sections of model papers focusing on the figures of the paper

- Are the figures clear and legible? If yes, what features of the figure make it clear and legible? If not, how could the figure be changed to improve clarity and legibility?
- What information is contained in the captions?
- Are the figures easily understood with the aid of the caption? Why or why not?
- What are the main features of the figures? Are all the figures necessary to understand the results described in the text? Are additional figures needed to fully understand the results described in the text?
- If there are multiple curves on one graph, does it make sense to have them all on one graph? Should they be separated? If there multiple curves across several graphs, could they be condensed onto one graph without loss of clarity?

Conclusion/Discussion Sections

Step 1 Reading questions for Conclusion/Discussion section of modeling papers

- For each paper, what type of material is discussed in the conclusion/discussion section? How does it differ from what is in the results section? Make list of at least three types of items which are discussed in the conclusion/discussion section.
- For each paper, are there any citations in the conclusion/discussion sections? What purpose do these citations serve?
- For each paper, are there any references back to figures or tables discussed in the results (or other) sections? In what context are the figures referenced?