	Criteria	Exemplary (4)	Proficient (3)	Developing (2)	Insufficient (1)	Missing (0)
1.1	Data generation and prediction based on eigenvalues (Problems 1-2)	Accurately generates and plots data. Calculates eigenvalues correctly. Predicts long-term behavior correctly using decomposition.	Data and plot are mostly correct and labeled. Interpretation of eigenvalues is generally sound with minor gaps.	Data or plot contains errors. Interpretation of eigenvalues is partially incorrect or lacks clarity.	Attempted but largely incorrect. Interpretation is missing or flawed.	No meaningful attempt.
1.2	Examine model data (Problems 3-4)	Correctly creates and plots distribution vectors and ratios. Plots are clear and labeled. All discussion prompts are thoroughly and clearly addressed.	Implementation and visualization is mostly correct. Some discussion responses lack clarity or completeness.	Minor errors in implementation. Discussion responses are partially incomplete or unclear.	Major error or many minor issues in implementation. Discussion responses are mostly missing or incorrect.	No meaningful attempt.
2	Explain relationships using linear algebra (Problems 3,5-6)	Identifies and clearly demonstrates relationships in problems 3 and 5. The summary (6) is complete and clearly described.	Identifies and clearly demonstrates relationships in problems 3 and 5. The summary (6) is mostly complete and clearly described.	Attempts to identify and demonstrate relationships in 3 and 5.The summary (6) is somewhat incomplete and/or unclear/incorrect.	Does not attempt identify relationships in 3 and 5. The summary (6) is mostly incomplete and/or unclear/incorrect.	No meaningful attempt.
3	Determine critical survival rate using linear algebra (Problems 7-9)	Clearly explains the connection between critical survival rate and eigenvalues. Correctly calculates rate and compares it to previous value. Visualization (9) is meaningful and clear.	Explanations and calculations are mostly correct and justified. Visualization (9) is meaningful and clear.	Explanations and calculations contain several minor errors or a major error, and/or lack justification. Visualization (9) is present.	Explanations and calculations contain major errors and/or are unjustified.	No meaningful attempt.
4	Apply analysis to Species of Choice (Problem 10)	Applies analysis correctly to a new species model. Communicates results effectively with well-chosen visualizations.	Analysis is mostly correct. Visualizations are present and generally support conclusions.	Analysis contains errors or lacks depth. Visualizations are unclear or incomplete.	Attempted but incorrect or unsupported. Visualizations are missing or flawed.	No meaningful attempt.
	Synthesis: Written Introduction and Conclusion	Introduction is accessible to a general audience and clearly explains the background, significance, learning goals, and report structure. Conclusion effectively summarizes learning outcomes and proposes thoughtful next steps.	Introduction is mostly clear and includes most required elements. Conclusion summarizes learning outcomes and suggests next steps.	Introduction or conclusion is missing key elements or lacks clarity. Connections to learning goals are weak	Introduction and/or conclusion are present but unclear, incomplete, or disconnected from the assignment goals.	No meaningful attempt.

General notes:

- Make sure you include an introduction and a conclusion in your final report.
- Before submitting, run your entire live script and make sure that all output is present and displays as expected.
- Effective and clear communication is essential throughout your written report. Solutions written using incomplete sentences and/or with significant grammatical errors earn a maximum rating of 2 for that criteria category.
- Visualizations must be clear and easy to interpret. Font sizes must be readable and colors/markers easily distinguishable. All plots should include labels and a title (and a legend when applicable).