

Detailed Overview of Tasks

Research

- Model & Model Background: Determining which model to study and understanding the physical basis and real-world applications and implications of the model.
- Math Background: Understanding the theory of dynamical systems and bifurcation theory, particularly as applied to modeling.
- Qualified Scientist: Contacting Dr. Baer in order to consult on mathematical and computational aspects of the model and possibly another scientist qualified in the field of the model to consult on the implications of the model.

Design

- Question & Hypothesis: Based on background information, predicting a possible real-world implication of the analysis of the model with a slow variable
- Procedural Design: Setting up the programs needed to perform calculations and analyze the output.

Experimentation

- Experiment & Computation: Writing any necessary code and performing necessary calculations.
- Analysis: Determining what the results imply. May involve writing code to help visualize or analyze the results and consultation with a qualified scientist about the most likely physically possible scenarios.

Report & Poster

- Report: Writing up a detailed research report, with an emphasis on real-world applications and clear explanations of the mathematics and computer science involved.
- Poster: Will be based on report.
- Presentation: Both short and long versions; emphasis on explaining simply and concisely the details of the experiment and background.