

What is mathematical biology and how useful is it?

**Abstract:** I shall define what is meant by “mathematical biology,” and then proceed to illustrate the degree of its usefulness by examples taken from wound healing, reconstructive surgery, tuberculosis as a disease with prognosis which depends on the age of the patient, and viral treatment of glioblastoma. All these examples are modeled by systems of differential equations, and the challenges are:

- 1) Researching the biological literature in order to set up a mathematical model;
- 2) Determining the rate parameters;
- 3) Simulating the model.

The final test is to show good fit with experimental results, after which the model can be used to suggest new hypothesis.