

Quantifying Life: A Computational Approach to Teaching Mathematics to Biology Students

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Computational programming is an effective approach for teaching mathematical concepts by making them interactive and visual. I have developed a set of materials for teaching mathematical modeling, such as Markov models and dynamical systems, for biology students with no prior programming experience and a high school mathematics background. These include R programming exercises and projects, demonstrations using Shiny R applications, and a textbook (Quantifying Life) that is organized by increasing programming complexity. I will demonstrate examples of programming projects, Shiny apps, and share teaching experiences, including feedback from student questionnaires. I will also describe the process of publishing with an academic press and discuss different avenues for dissemination of educational materials.