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Mentorship Letter for Carlos Castillo-Garsow

This letter is to certify that Carlos Castillo-Garsow and myself (the group will also include an undergraduate mathematics education student) are collaborating on a mathematics education project at the interface of Mathematics and Mathematical Biology—a project that has already been tried in a preliminary form among a group of diverse students from high schools around Arizona (including a large percentage of students from underrepresented groups). The goal is to develop a book that makes use of population biology (ecology, demography and epidemics) to teach students and mathematics high school mathematics teachers. The concepts that we stress include increase differentiation between the concepts of linear and nonlinear, deterministic versus stochastic and analytic solution versus qualitative understanding. Emphasis is put on studying the role of composition of maps and phase space. The study of probabilistic and deterministic models is used to bring “simple” mathematical models in ecology, epidemiology and demography (population biology) as motivators for the importance of mathematics. Emphasis on helping students understand the concepts of rate and probability through modeling are also being explored. Applications to communicable diseases and demographic issues that affect society are on the works. In addition, efforts to use mathematics in the context of ecological and/or conservation biology issues is also being explored.

Sincerely

A handwritten signature in black ink, which appears to read 'Carlos Castillo-Chavez'.

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