

## Updated Life History Chapter (05/2022)

SimBio's Life History chapter was revised and streamlined for 2022 in response to extensive feedback received from students and faculty since the original chapter was released in 2009.

### WHAT WE CHANGED

- We focused explanations more directly on how evolution shapes life-history strategies.
- We created a new narrated animation to introduce the trade-offs that underlie life-history evolution.
- We added an interactive diagram that allows students to explore different ways that a finite amount of energy can be allocated to growth versus reproduction.
- We completely reworked the sequence on factors affecting clutch size in birds. The new sequence is tightly focused on hypothesis evaluation. We replaced great tits with common kestrels as a focal example, because the associated data sets are easier to interpret and avoid unfamiliar metrics.
- We revised storylines to make concepts easier to understand and as part of a broader effort to ensure that our treatment of human stories is more culturally appropriate.
- We extensively reworked the treatment of life-history tables with a fresh emphasis on interpretation. Consequently, students will spend much less time performing repetitive calculations, and they receive clear, tailored feedback when they make mistakes.
- We created a new narrated animation to introduce and explain survivorship curves.
- We replaced our discussion of loggerhead turtles with a more in-depth investigation of colobus monkey life tables, to help students better visualize how life tables and modeling efforts can be used to guide conservation actions.
- We revised our treatment of the demographic transition and the factors driving it.
- We overhauled the sequence on life-history classifications. We clarified similarities between the schemes of Grime and of Winemiller and Rose, so students can identify parallels in how plants and fish have evolved in response to environmental drivers.
- We re-scaffolded the Red Fish – Blue Fish simulation, where students explore life-history strategies in stable vs. variable environments, to improve student engagement and to directly set up the Winemiller and Rose classification scheme.
- We improved our supplemental materials for instructors by creating a new Poll-and-Discuss slide stack and by drafting a new set of supplemental questions. Both will be available through the SimUText System's Instructor Portal by May 2022.

### WHAT WE DID NOT CHANGE

- We kept the underlying chapter structure. The chapter is divided into the same four sections as the original, and the order in which topics are addressed in each section is essentially unchanged.
- The chapter continues to rely on simulations and questions with feedback to introduce concepts like demography, population growth, life-history tables, and trade-offs. And while the simulations have been improved, the dynamic, interactive feel of the chapter has been retained.