References for Population Ecology and Evolutionary dynamics
(Population Genetics and Evolution School, Feb 2019)

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- *Theory/modelling books for beginners:* There are many books on the topic. Following books are written keeping in mind the needs of biology students with little mathematical background.

    1. McElreath and Boyd, Mathematical Models of Social Evolution: A guide for the perplexed.
    2. Otto and Day, A Biologist's Guide to Mathematical Modeling in Ecology and Evolution (suggested by Kavita Jain).

- *Modelling Philosophy:* You may read the Chapter 1 (sections 1.1, 1.2 and 1.3) of McElreath and Boyd. An old article by Richard Levins are also worth a read (at least the first section): Levins 1966, The strategy of model building in population biology, The American Naturalist, 54: 421-431.

- *Continuous time exponential and logistic models:* I recommend the book chapters 2 and 3 of the book Gotelli, Primer of Ecology. It provides a great mix of ecological intuition and mathematical models.

- *Discrete time population models (logistic):* I could not find an easy reference; of course, with the material covered in the lectures the first half of the May 1976 paper should be readable. Kavita recommends the book by Otto and Day (Chapters 3 and 5).

- *For mathsy folks:* For continuous time models - read the chapters 1, 2 and 3 (if possible all chapters) of the book by Strogatz, Nonlinear dynamics and chaos: With Applications to Physics, Biology, Chemistry, and Engineering. For the discrete model, read the Chapter 8 of the same book.

- *Evolutionary dynamics*: Chapters 1 of McElreath and Boyd (simple two allele frequency evolution). Chapter 2 of the same book covers Hawk-Dove game and ESS. Chapter 3 covers cooperation and Price equation.