0. (This problem is not to be turned in.)
   (a) Read Sections 1.5–1.7, 2.1–2.3, and 2.5–2.6
   (b) Section 1.8 #19, 22
   (c) Section 2.12 #1–3

1. On Homework 2, you determined the limiting behavior of solutions to the difference equation
   \[ x_{t+1} = ax_t + b. \]
   Now, assume that \( a, b \neq 0 \). Find all steady states, and determine whether each of them is locally stable, locally attracting, locally asymptotically stable, globally asymptotically stable, and/or a global attractor. (How) does your answer depend on \( a \) and \( b \)?

2. Section 1.8 #14, 17, 25

3. Section 2.12 #5, 6, 14

4. (In this part of your homework, you will start planning your final project.)
   (a) Who will be your partner for the final project? Or, you may do a solo project.
   (b) Together with your partner, pick 3 mathematical biology papers (for instance, from the list on the class Piazza site) that you might like to analyze for your project. State the titles and authors. In class on Thursday, Feb. 11, please bring a laptop with these papers downloaded, or printed versions of the PDFs. You will pick a paper in class that day, with guidance from the instructor.