

18 October 2024

THE LOGISTIC MAP

$$f_r(x) = r \cdot x(1-x)$$

$$0 \leq r \leq 4$$

$$0 \leq x \leq 1$$

RECALL:

- If $0 \leq r \leq 1$, then the trajectories converge to 0.
- If $1 < r \leq 3$, then the trajectories converge to $x^* = \frac{r-1}{r}$.
- If $3 < r < 3.449$, then the trajectories oscillate between two values.
- As r increases, we observe a sequence of period-doubling bifurcations.



