

CARLETON UNIVERSITY
SCHOOL OF COMPUTER SCIENCE
WINTER 2021

COMP 5005

Assignment II

Due: Feb. 8, 2021

Consider the following two Markov Chains:

- (a) An absorbing chain with states $\{1, 2, 3, 4\}$. The two transient states are 2 and 3, and the two absorbing barriers are states 1 and 4.
- (b) An ergodic chain with 3 states.

Write programs to calculate the absorbing probabilities for the absorbing chain, and the steady state equilibrium probabilities for the ergodic chain. These must use the corresponding equations derived in class.

In the case of the absorbing chain, verify the result by simulation.

In the case of the ergodic chain, verify the result by the “matrix multiplication” scheme *and* by simulation.

Give results of testing your programs for a few cases. In particular, test them for the chain given in class.