

# CSCI 393, Algorithm Design and Analysis, Spring 2020

## HW 05 – Recurrences (15 points)

1. Consider the following recurrence:

$$a_k = \begin{cases} 0 & \text{if } k = 0 \\ a_{k-1} + 3k + 1 & \text{if } k > 0 \end{cases}$$

- (a) (5 points) Write out the first six terms of the recurrence.
- (b) (5 points) Make a guess for the explicit formula for  $a_n$ .
- (c) (5 points) Prove your guess is correct using induction.

### What to Turn In

This assignment is to be turned in through Blackboard. You can type up your solution using a computer program or you can prepare your solution by hand and scan it.