# CSc 59866

# Assignment due March 1, 2021

Analyze the asymptotic behaviour of the following three-dimensional difference equation model by calculating its eigenvalues and eigenvectors.

$$x_t = x_{t-1} - y_{t-1}$$
$$y_t = -2x_{t-1} - 4y_{t-1} + z_{t-1}$$
$$z_t = y_{t-1} + z_{t-1}$$

You should find all the functions you need for these calculations in the libraries numpy.linalg and scipy.linalg.

Include all of your analysis and discussion in your .ipynb file and submit the file through Blackboard. The name of the file you submit should be

lastname_firstname_AS02.ipynb.

Do not clear your results after your last run so that I will be able to see your results without rerunning your file.

If you collaborate with anyone on this assignment, be sure to follow the collaboration guidelines in the syllabus.