**Applied Computational Science**

# Homework: Linear Algebra.

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1.

We have,

Using Gauss-Seidel method,

Iteration 1:

Iteration 2:

2.

Let, A be an n×n symmetric, positive definite tridiagonal matrix:

Equating entries of to gives:

Equating the entries of to gives:

Therefore, the Cholesky factorization equations for the tridiagonal matrix A are:

3.

Python code for the implementation of power method is saved in the Jupyter Notebook named

‘HW 3.ipynb’.

4.

Condition number is also calculated in the Jupyter notebook using,