

# Linear Algebra 2

June 25, 2020

## 0.0.1 Gaussian elimination

For this assignment, submit a file called `gaussian.py`.

Consider an arbitrary non-homogeneous system of  $n$  linear equations in  $n$  variables, given by  $A\mathbf{x} = \mathbf{b}$

1. Apply [Gaussian elimination](#) to get the reduced row echelon form of the augmented matrix  $[A|b]$ . Return the unique solution of the system if it exists, otherwise return `None` (both for the case of infinite solutions and no solution). Implement this as a function `solve_equations(A,b)`.
2. Further use Gaussian elimination to extend this routine to compute  $\det(A)$  and  $A^{-1}$ , as functions `determinant(A)` and `inverse(A)`.