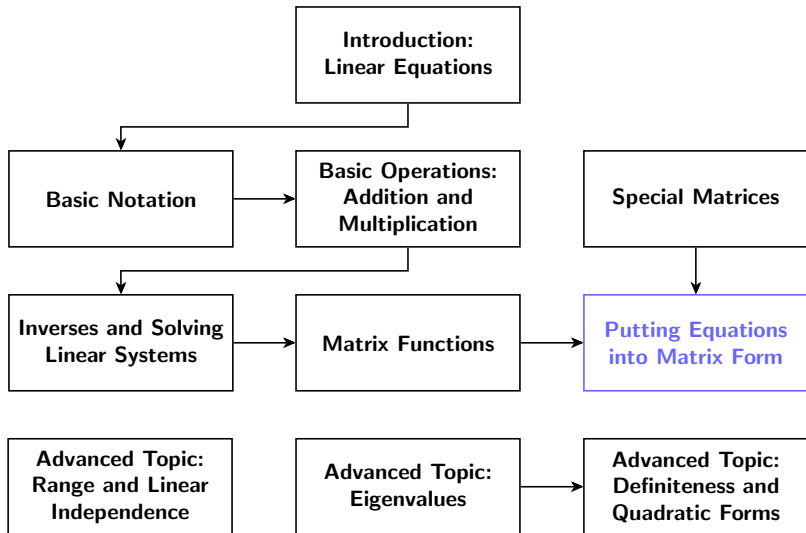


Linear Algebra Review



- Given $a_i \in \mathbb{R}^n$, $b_i \in \mathbb{R}$ for $i = 1, \dots, m$,
 $f : \mathbb{R}^n \rightarrow \mathbb{R}$

$$f(x) = \sum_{i=1}^m (a_i^T x - b_i)^2$$

- $f : \mathbb{R}^{m \times n} \rightarrow \mathbb{R}$

$$f(A) = \sum_{i=1}^m \sum_{j=1}^n A_{ij}^2$$

- Given $x \in \mathbb{R}^m$, $y \in \mathbb{R}^n$, construct $A \in \mathbb{R}^{m \times n}$ such that

$$A_{ij} = (x_i - y_j)^2$$