

**Lecture A.01 Quadratic forms**

The solution to equations of the form  $ax^2 + bx + c = 0$  is

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}. \quad (\text{A.1})$$

**A.01.1 Completing the square**

This is accomplished by re-writing the quadratic formula in the form of the left-hand-side (LHS) of this equality, which describes factorization

$$x^2 + 2xh + h^2 = (x + h)^2. \quad (\text{A.2})$$