First Law of Thermodynamics
\[ \Delta U = Q - W \]
\[ Q = \text{Heat} \]
\[ W = \text{Work done by gas} \]

Specific Heat and Heat Capacities:
\[ Q = mc \Delta T = C \Delta T, \]
\[ \sum_{i} Q_i = 0, \quad \text{closed system (e.g. calorimeter).} \]

Heat Conduction:
\[ \frac{\partial Q}{\partial t} = \kappa A \frac{\Delta T}{\Delta t} \]