Summary of lecture 5

- The Gibbs factor:

$$P(N, \epsilon) = \frac{\exp\left(\frac{N\mu - \epsilon}{kT}\right)}{\mathcal{Z}}$$

$$\mathcal{Z} = \sum_{N,s} \exp\left(\frac{N\mu - \epsilon_{Ns}}{kT}\right)$$

$P(N, \epsilon) =$ probability to find system in a PARTICULAR quantum state containing N particles and energy ϵ

$\mathcal{Z}$ is called the Grand Partition Function