$$\boldsymbol{x} \sim \mathcal{D} \longrightarrow \boxed{\begin{array}{c} \text{Encoder} \\ \text{(parameters } \boldsymbol{\phi}) \end{array}} \longrightarrow (\boldsymbol{\mu}, \boldsymbol{\sigma}) \longrightarrow \boldsymbol{z} \sim q_{\boldsymbol{\phi}}(\boldsymbol{z}|\boldsymbol{x})$$

$$q_{\boldsymbol{\phi}}(\boldsymbol{z}|\boldsymbol{x}) = \mathcal{N}(\boldsymbol{z}|\boldsymbol{\mu}, \mathrm{diag}(\boldsymbol{\sigma}^2))$$