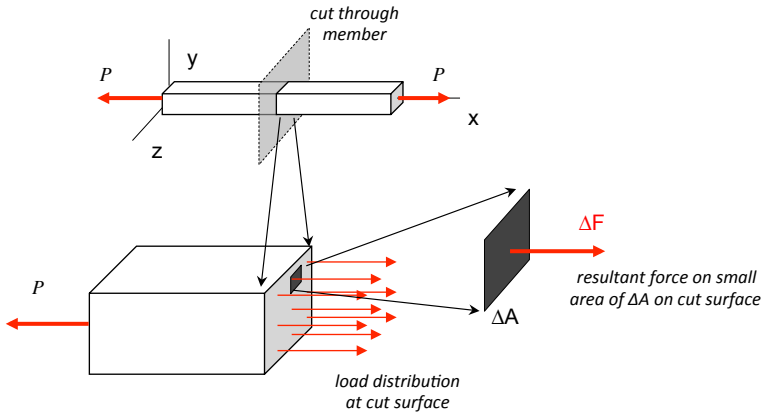
Lecture 2 summary: normal stress and strain

- *LOADING: Axial loading on a straight structural member.*

- *STRAIN AND STRESS:*

$$\sigma_x = \frac{dF}{dA} \quad \Rightarrow \quad F = \int_A \sigma_x \, dA$$

$$\varepsilon_x = \frac{\Delta L}{L_0}$$



- *LINEAR RANGE OF STRAINS:*

$$\sigma_x = E\varepsilon_x$$

$$\varepsilon_y = \varepsilon_z = -\nu\varepsilon_z$$

- *FAILURE:*
  Yielding strength?
  Ultimate strength?
  Fracture strength?