Hooke’s Law Applied to a Spring – Mass System

- $F_s = -kx$
- When $x$ is positive (to the right), $F$ is negative (to the left)
- When $x = 0$ (at equilibrium), $F$ is 0
- When $x$ is negative (to the left), $F$ is positive (to the right)
Hooke’s Law

- $F_s = -kx$
  - $F_s$ is the spring force
  - $k$ is the spring constant
    - It is a measure of the stiffness of the spring
      - A large $k$ indicates a stiff spring and a small $k$ indicates a soft spring
    - $x$ is the displacement of the object from its equilibrium position
      - $x = 0$ at the equilibrium position
  - The negative sign indicates that the force is always directed opposite to the displacement