Electric Field of Uniformly Charged Spherical Shell

- Radius of charged spherical shell: $R$
- Electric charge on spherical shell: $Q = \sigma A = 4\pi \sigma R^2$.
- Use a concentric Gaussian sphere of radius $r$.
  - $r > R$: $E(4\pi r^2) = \frac{Q}{\epsilon_0}$
    \[ \Rightarrow E = \frac{1}{4\pi \epsilon_0} \frac{Q}{r^2} \]
  - $r < R$: $E(4\pi r^2) = \frac{Q_{in}}{\epsilon_0} = 0$
    \[ \Rightarrow E = 0 \]