

# PHYSICS NOTEBOOK — Day 3 Update

Chapter: Electrostatics

## Electric Field Lines — Properties

- Start from + charges and end on – charges
- Never intersect
- Denser lines → stronger field
- Sparse lines → weaker field
- $\mathbf{E}$  is tangent to field line at any point
- For isolated + charge → lines radially outward
- For isolated – charge → lines radially inward
- Like charges → lines diverge
- Unlike charges → lines converge

## Electric Flux ( $\Phi$ )

- $\Phi = \mathbf{E} \cdot \mathbf{A} \cos\theta$
- Scalar quantity
- SI Unit:  $\text{N}\cdot\text{m}^2/\text{C}$
- $\Phi = 0$  when  $\theta = 90^\circ$
- $\Phi$  increases if  $E$  or  $A$  increases
- Maximum flux when field is perpendicular ( $\theta = 0^\circ$ )