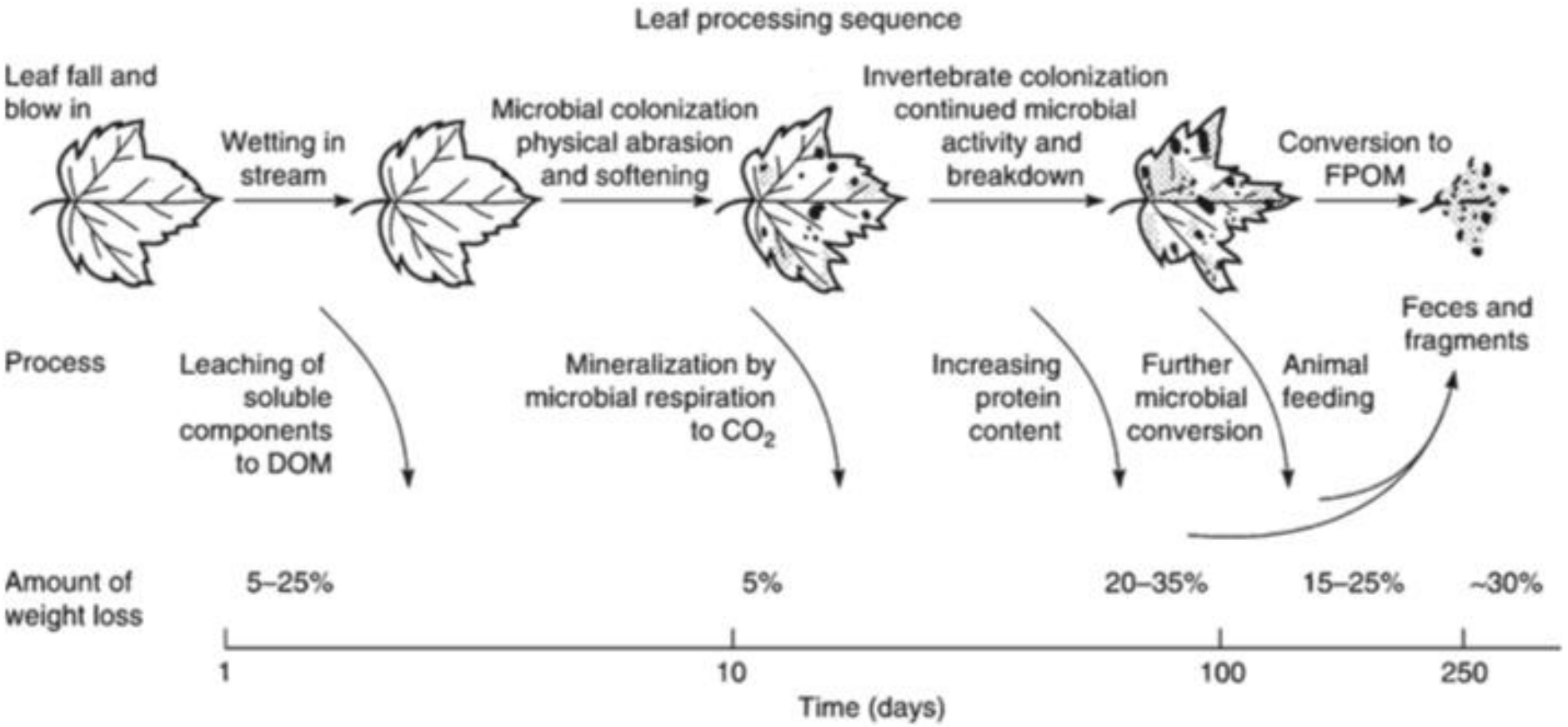
Leaf-litter decomposition

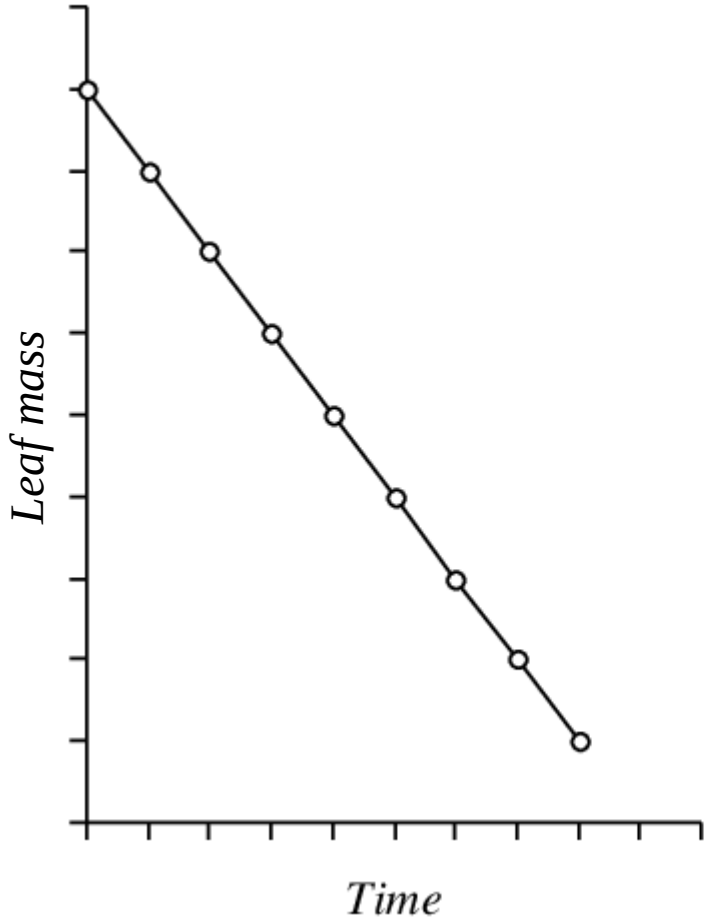
Leaf-litter degradation

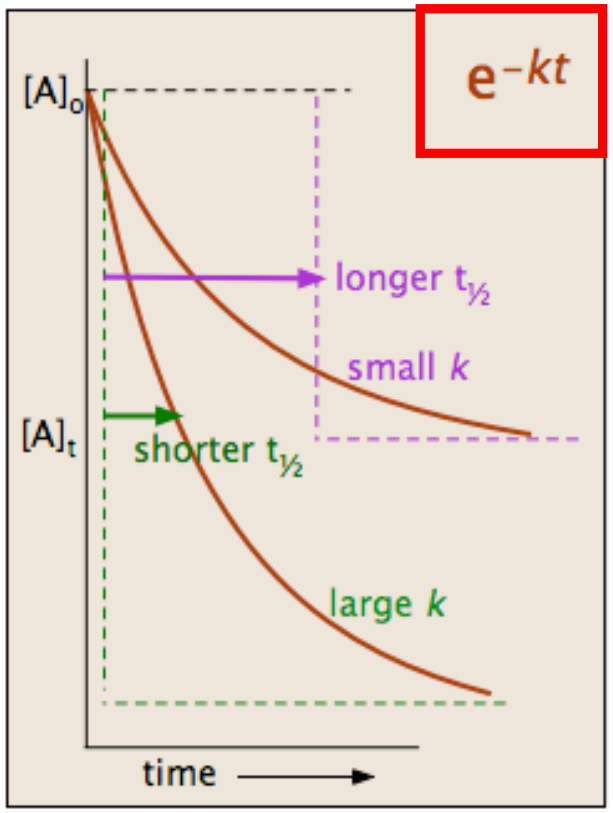


kinetics

Zero-order kinetics

A constant <u>amount</u> of mass is removed per unit time





Half-life time $t_{1/2}$
(time it takes to reach 50% of initial DM)

How to estimate decomposition rate (k)

1) **Zero-order kinetics:** regress DM against days of exposure
   The slope of the linear regression line (negative) equals the decomposition rate constant k

2) **First-order kinetics:** Regress natural log of DM (y-axis) against days of exposure (x-axis)
   The slope of the regression line (negative) equals the decomposition rate constant k

3) Select model based on R^2 (model fit)

4) Is there a **significant difference in decomposition between treatment and control**?

tasks

1. Choose treatment
2. Plot data
3. Estimate zero-order kinetics for treatment & control
4. Estimate first-order kinetics for treatment & control
5. Inspect R^2 of all models – which type of kinetics fits the data better?
6. Plot data and model
7. Compare decomposition rates between treatment and control

    Is there a statistically significant difference in decomposition rate between treatment and control?