Key points

1. The Arrhenius expression for the rate constant $k = Ae^{-E^a/RT}$
2. The assumption of transition state theory TST
(activated complex is in equilibrium with reactants)
3. Relationship of TST rate constant and Arrhenius rate const.
4. A catalyst lowers the barrier for a reaction. It provides an alternative reaction pathway, but does not alter the products.
5. Homogeneous vs. Heterogeneous catalysis
6. Examples:
    a. Zeolites: shape selective catalysis
    b. Ziegler-Natta: polymerization catalyst
    c. Alcohol dehydrogenase
    d. Serine protease