Topics for Exam 1

1. **Discrete Models of Population Growth: Difference Equations**

   (a) Modeling bacterial growth: A conservation principle
   (b) Malthusian or geometric growth (or decay) models
   (c) Logistic growth
   (d) General discrete models
       i. Linear models
       ii. Non–linear models
       iii. Systems of difference equations
   (e) Analysis of discrete models
       i. Equilibrium points and stability
       ii. The Principle of Linearized Stability
       iii. Cobweb analysis
       iv. Oscillations

2. **Applications:**

   (a) Conservation Principle
   (b) One–Compartment models