Outline 6: The Origin of Species

I. Speciation

A. Microevolution

B. Macroevolution

1. Anagenesis

2. Cladogenesis

II. Species Definitions

A. Biological Species Concept

1. Definition
2. Reproductive Isolation

a. Prezygotic Isolation

i. habitat isolation

ii. behavioral isolation

iii. temporal isolation

iv. mechanical isolation

v. gametic isolation

b. Postzygotic Isolation

i. reduced hybrid viability

ii. reduced hybrid fertility

iii. hybrid breakdown
B. Limits of the Biological Species Definition

C. Other Species Definitions

1. ecological species definition

2. paleontological species concept

3. phylogenetic species concept

4. morphological species concept

III. Modes of Speciation

A. Allopatric Speciation
B. Steps of Allopatric Speciation

1. Geographic Isolation

2. Divergence of gene pools

3. New Species Arise
C. Sympatric Speciation

1. Polyploids

2. Sympatric Speciation in Animal species

D. Adaptive Radiations

E. The tempo of speciation

1. Punctuated Equilibrium

2. Gradualism
IV. Macroevolution

A. The evolution of the Eye

B. Exaptations

C. Evo-Devo

1. Heterochrony

2. Allometric growth

3. Paedomorphosis

4. Homeotic genes

D. Evolution is not goal oriented