

Bio. 3302 Introduction to Evolution

Study Guide

Linkage Disequilibrium

Sex-Linkage

Sex Determination

Adaptive Significance of Sex

Important terms and Concepts

Allele

Apomixis

Budding

Color Blindness

Dioecious

Fission

Haemophilia

Haplodiploid

Haplotype

Hermaphrodite

Independent Assortment

Linkage

Linkage Disequilibrium

Linkage Equilibrium

Locus (loci)

Lottery Hypothesis

Monoecious

Muller's Ratchet

Parthenogenesis

Recombination

Red Queen Hypothesis

Sex-linked genes

Tangled Bank

X-linked genes

Discussion Questions

1. What is independent assortment according to Mendel? Is this always the way it works?
2. How can genes or loci be linked together? Is there any advantage to having genes linked?
3. What is a haplotype?
4. What is the relationship between recombination frequency and genetic distance?
5. What is linkage disequilibrium? What are some of its causes?
6. There are some advantages to reproducing asexually. What are they? Give some examples of asexual reproduction.
7. If sexual reproduction "costs more" than asexual reproduction, why is it so prevalent in animals?
8. From an evolution point of view, what is the adaptive significance of sex? It makes sense that the function of sex is reproduction, but is there more to it? What about genetic recombination?

9. Compare and contrast asexual and sexual reproduction. Why are asexually reproducing species commonly at the tips of clades, and mostly not constituting large, evolutionary old lineages?
10. What is the Red Queen Hypothesis, and what might it have to do with the origin and maintenance of sex?
11. Explain why in the model called "Muller's ratchet", the mean number of deleterious mutations per individual increases as time goes by.