

BIOL 2030, Aug. 25, '09

Ch. 2 problems:

Assigned: 4, 5, 7, 10, 12, 16, 18, 19, 20, 21, 22, 25

Suggested: 6, 8, 9, 13, 15, 17, 24, 26, 27

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I. Course Introduction

II. Course Content

- A. Transmission Genetics
- B. Molecules of Heredity
- C. Examining and Interpreting Gene Function

III. Historical thoughts about inheritance

- A. Hippocrates – humoral theory
  - i. Maupertius – particulate inheritance
  - ii. Darwin – pangenesis
- B. Aristotle – problem of acquired characteristics
  - i. Lamarck, Darwin
  - ii. Weismann's mice
- C. Sexual Reproduction
  - i. reproduction by mating and equal contribution from two parents
  - ii. plants have sexual cycle
  - iii. fertilization comes from union of single pollen grain and single egg cell
- D. Hybridization (Gartner)
  - i. hybridization = cross
  - ii. second generation shows greater variability than first

IV. Mendel and the laws of inheritance

- A. Keys to success
  - i. controlled matings
  - ii. examined single traits
  - iii. used true-breeding individuals
  - iv. counted offspring of each type
- B. Three "Laws"
  - i. Law of Segregation
  - ii. Law of Dominance
  - iii. Law of Independent Assortment
- C. Interpreting and analyzing crosses
  - i. the Punnett square
  - ii. genotypes and phenotypes
  - iii. probabilities
- D. Two-factor crosses
  - i. independent assortment
  - ii. probability vs. Punnett square