**Zoology Lab Midterm Study Guide**

In this study guide, I have some hyperlinks to tutorials. You can click the link, or type it into your web browser. However, you’ll notice that I also included QR codes. If you have a Smartphone, download a free QR reader app and then scan the code. It will take you right to the webpage I want you to visit.

**Human Heredity of Single Gene Traits:**

1. Know the following terms:
   1. P Generation
   2. F1 Generation
   3. F2 Generation
   4. Alleles
   5. Homozygous
   6. Heterozygous
   7. Genotype
   8. Phenotype
2. Know the Mendelian Genetics Laws
   1. Law of Dominance
   2. Law of Segregation of Alleles
   3. Law of Independent Assortment
3. What is a test cross?
4. Know about Hardy Weinberg.
   1. What does every part of the following formula stand for:
      1. P2 + 2pq + q2 = 1.0
   2. Be able to calculate the frequency of the dominant and recessive allele in a gene pool.
   3. Be able to calculate the frequency of the homozygous dominant, heterozygous, and recessive individuals in a population.
5. Having trouble with this? Watch some **tutorial videos over Hardy Weinberg** at Khan Academy: <https://www.khanacademy.org/search?page_search_query=hardy%20weinberg%20equation%20practice>



1. This video shows how to apply the Hardy Weinberg formula.

<https://www.khanacademy.org/science/biology/her/heredity-and-genetics/v/applying-hardy-weinberg>



1. Practice problems using Hardy Weinberg:

<https://www.khanacademy.org/science/biology/her/heredity-and-genetics/e/hardy-weinberg>



**Mendelian Genetics: Their Application to Solving Genetics Problems**

1. Be able to solve the following types of genetics problems:
   1. Monohybrid
   2. Dihybrid
   3. Incomplete Dominance
   4. Sex-linked Traits
2. Having trouble with this? Watch this **tutorial video over how to use a Punnett square** at Khan Academy:

<https://www.khanacademy.org/science/biology/classical-genetics/mendelian--genetics/v/punnett-square-fun>



1. Having trouble with **Solving Monohybrid Problems?** Try these problems:

<https://www.khanacademy.org/science/biology/classical-genetics/mendelian--genetics/e/punnett-squares>



1. Having trouble with **Solving Dihybrid Problems?** Watch this video:

<https://www.khanacademy.org/science/biology/classical-genetics/mendelian--genetics/e/dihybrid-punnett-squares>



**Population Genetics: Natural Selection AND the Bottleneck Effect**

1. Know the following terms:
   1. Natural Selection
   2. Evolution
   3. Population
   4. Gene Pool
   5. Bottleneck Effect
   6. Founder Effect
   7. Genetic Fixation
   8. Genetic Drift
2. 5 Hardy Weinberg criteria that must be met for a population to never evolve:
3. Why are the Amish suffering from genetic disorders?
4. Know how to calculate allele frequencies.
5. Need help with this? This article explains how to calculate allele frequencies: <https://www.khanacademy.org/science/biology/her/heredity-and-genetics/a/allele-frequency-the-gene-pool>



1. Here is a video covering how to calculate allele frequencies:

<https://www.khanacademy.org/science/biology/her/heredity-and-genetics/v/allele-frequency>



**Animal Classification**

1. Who was Carolus Linneaus?
2. Know the following terms:
   1. Taxonomy
   2. Binomial nomenclature
   3. Genus name
   4. Species name
   5. Taxa
   6. Phylogeny
   7. Dichotomous Key
3. What is correct way to write a scientific name?
4. What is the correct way to type a scientific name?
5. Know the taxonomic rankings in their correct order.
   1. Which rank is the most inclusive?
   2. Which rank is the most exclusive?
6. Need some help with using a dichotomous key? This video explains how to do that: <https://youtu.be/EjvpVNNhj5A>

