**Unit 3 Biology 3201 Assignment 3**

1. **Define each of the following:**
2. Incomplete dominance
3. Co-dominance
4. Multiple alleles
5. In shorthorn cattle, the gene for red coat is co-dominant to the gene for white coat. The heterozygous condition is known as roan. What genotypic and phenotypic ratios are expected for the following crosses:
6. Red x red
7. Red x roan
8. Red x white
9. Roan x roan
10. Roan x white
11. white x white
12. What is the probable genotypic and phenotypic ratio among children born to a mother who is heterozygous type A and a father with type AB blood.
13. One parent has type A blood and the other parent has type B blood. What are their genotypes if they produce a large number of children whose blood types were;
14. All AB

b. 1/2 AB and 1/2 B

1. 1/2 AB and 1/2 A
2. 1/4 AB ,1/4 A,1/4 B ,and 1/4 O
3. A woman with blood type B has a child with blood type O. What are the genotypes of the mother and baby? Which genotype could the father not have? Which genotype could the father be?
4. On the Jerry Springer show, a woman is trying to determine who the father of her baby is. Her current boyfriend says that he is not the father, before a war breaks out on stage Jerry suggests that they get a blood test to determine if he is indeed the father or not. The boyfriend has blood type AB , The mother is type A, and the baby has blood type A. Is the boyfriend the father or not? Explain! Show all your workings as to how you came to your conclusions.
5. In northeast Kansas there is a creature know as a wildcat. It comes in three colors, blue, red, and purple. This trait is controlled by a single [locus](http://www.ksu.edu/biology/pob/genetics/defin.htm#loc) gene with incomplete dominance. A [homozygous](http://www.ksu.edu/biology/pob/genetics/defin.htm#hom) (BB) individual is blue, a homozygous (B’B’) individual is red, and a [heterozygous](http://www.ksu.edu/biology/pob/genetics/defin.htm#het) (BB’) individual is purple.

What would be the [genotypic](http://www.ksu.edu/biology/pob/genetics/defin.htm#gen) and [phenotypic](http://www.ksu.edu/biology/pob/genetics/defin.htm#phen) ratios of the offspring be for the following crosses:

1. a blue wildcat were crossed with a red one?
2. Purple wildcat crossed with a purple wildcat
3. Purple wildcat crossed with a blue wildcat