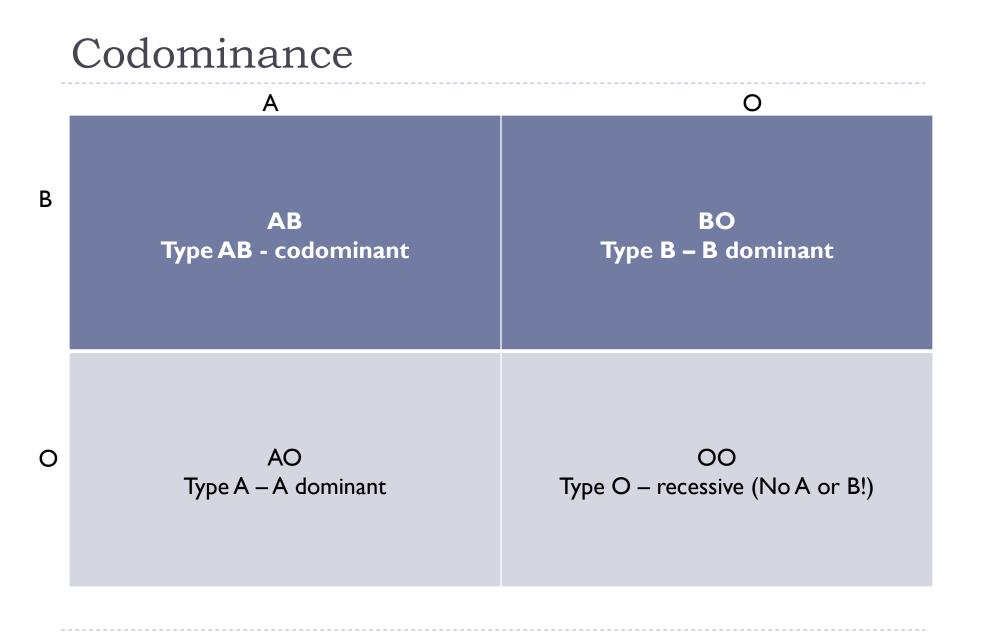
Codominance

Both alleles are expressed in the heterozygous form

- Example: blood type
- Human blood types there are four
 - A only express the A type dominant (AO, AA)
 - B only express the B type dominant (BO, BB)
 - AB express BOTH A AND B codominant (AB)
 - O have neither A or B (recessive OO)
- Let's cross a male parent with AO with a female parent with BO blood
 - What type of blood with the offspring have?



Codominance

- This is why certain blood types can donate to some but not others!
 - If you donate blood to someone who doesn't have your alleles, there is a clotting problem
 - If blood clots too much, the person can die

Туре	Donate to	Cannot receive from
A (AO)	A and O	B or AB
B (BO)	B and O	A or AB
AB (AB)	AB Can receive fr all	
0	Can donate to all	A, B, AB

Codominance

Sickle-Cell disease

D

- Codominant disorder
- The allele responsible is prevalent in the African American population and descendants
- Roughly 9% of the African American population has one form of the trait
- Affects blood cells and the ability to carry oxygen
- The trait will appear differently depending on the combination
 - I normal blood cell trait + I sickle cell trait = still normal but carry the trait (will have sickle cells + normal cells)
 - Can pass on the sickle cell trait to offspring
 - 2 sickle cell traits = sickle cell anemia

Multiple Alleles

- Example: Coat color in rabbits
- In rabbits, four alleles code for coat color
 - C, c^{ch} , c^{h} , and c
- Allele C is dominant to all other alleles
 - Results in a full color coat
- Allele c is recessive

- Results in albino color coat
- Allele c^{ch} is dominant to c^h
 - Results in Chinchilla coat
- Allele c^h is dominant to c
 - Results in Himalayan coat

Multiple Alleles

Phenotype	Allele	Possible Genotypes	Order of Dominance
Full color (brown)	C (capital C)	CC Cc ^{ch} Cc ^h Cc	Dominant over all others
Chinchilla	c ^{ch} (lowercase c with ch superscript)	C ^{ch} C ^{ch} C ^{ch} C ^h	Dominant over Himalayan and albino
Himalayan	c ^h (lowercase c with h superscript)	c ^h c ^h	Dominant over albino
Albino	c (lowercase c)	cc	Recessive to all others