**Molecular Genetics Exam Review**

* Mitosis & Meiosis
	+ Types of reproduction
		- Asexual – purpose, costs, benefits
		- Sexual – purpose, costs, benefits
		- Comparison between asexual and sexual reproduction
	+ Cell division
		- Cell cycle
		- Mitosis – purpose, phases, chromosome number, genetic variation, # of cells daughter cells produced
		- Cancer – as it relates to cell division
	+ Gamete production
		- Meiosis - purpose, phases, chromosome number, genetic variation, # of cells daughter cells produced
			* Principle of Segregation – explanation; how it increases genetic variation
			* Principle of Independent Assortment – explanation; how it increases genetic variation
		- Fertilization – as it relates to meiosis & chromosome number
		- Nondisjunction – causes, karyotype interpretation, trisomy 21
* Structure of DNA & RNA
	+ Relationship between DNA, chromosomes, genes, and alleles
	+ Nucleic acids & nucleotides – structure and relationship
	+ Complementary base pairs
	+ DNA vs. RNA
* Protein Synthesis
	+ Transcription – purpose & process
	+ Translation – purpose & process
	+ Mutations – types & impacts