

## BIOLOGY SPRING FINAL STUDY GUIDE 2017

### Unit 5: Cell Division (Chapter 10)

cell division  
mitosis  
chromatid  
centromere  
interphase

cell cycle  
prophase  
centriole  
spindle  
metaphase

anaphase  
telophase  
cancer

What problems does cell growth cause for cells?  
What are the main events in the cell cycle?

What are the four stages of mitosis?  
How are cancer cells different from other cells?

### Unit 6: Genetics (Chapter 11)

genetics  
fertilization  
true-breeding  
trait  
hybrid  
gene  
allele  
segregation  
gamete

probability  
homozygous  
heterozygous  
phenotype  
genotype  
independent assortment  
incomplete dominance  
codominance  
multiple alleles

polygenic traits  
homologous  
diploid  
haploid  
meiosis  
tetrad  
crossing-over

What is the principle of dominance?  
What happens during segregation?  
Who is Mendel and what did he study?  
How do geneticists use the principles of probability?  
How do geneticists use Punnett squares?

What is the principle of independent assortment?  
What inheritance patterns exist aside from simple dominance?  
What happens during the process of meiosis?  
How is meiosis different from mitosis?

### Unit 7: RNA and DNA (Chapter 12)

transformation  
bacteriophage  
nucleotide  
base pairing  
Frederick Griffith  
Oswald Avery  
Alfred Hersey  
Martha Chase  
Erwin Chargaff  
Rosalind Franklin

James Watson  
Francis Crick  
double helix  
chromatin  
histone  
replication  
DNA polymerase  
replication  
gene  
messenger RNA

ribosomal RNA  
transfer RNA  
transcription  
RNA polymerase  
translation  
codon  
anti codon  
mutation  
point mutation  
chromosomal mutation

What did scientists discover about the relationship between genes and DNA?  
What is the overall structure of the DNA molecule?  
What happens during DNA replication?

What are the three main types of RNA?  
What is transcription?  
What is translation?  
What are mutations?

## Unit 8: Human Heredity (Chapter 14)

karyotype	pedigree chart	genetic disorder
sex chromosome	sex-linked gene	gene therapy
autosome		
How is sex determined?		
How do small changes in DNA cause genetic disorders		

## Unit 9: Evolution (Chapter 15 & 16)

evolution	survival of the fittest	stabilizing selection
fossil	natural selection	disruptive selection
theory	descent with modification	genetic drift
James Hutton	common descent	founder effect
Charles Lyell	homologous structure	bottleneck effect
Charles Darwin	vestigial organ	speciation
Jean-Baptiste Lamarck	embryology	reproductive isolation
Thomas Malthus	gene pool	behavioral isolation
artificial selection	relative frequency	geographic isolation
struggle for existence	single-gene trait	temporal isolation
fitness	polygenic trait	
adaptation	directional selection	

What was Charles Darwin's contribution to science?  
What pattern did Darwin observe among organisms of the Galapagos Islands?  
How did Hutton & Lyell describe geological change?  
According to Lamarck, how did species evolve?  
What was Malthus' theory of population growth?  
How is natural variation used in artificial selection?

How is natural selection related to a species' fitness?  
What evidence for evolution did Darwin present?  
What are the main sources of heritable variation in a population?  
How is evolution defined in genetic terms?  
What determines the number of phenotypes for a given trait?

## Unit 10: Ecology (Chapter 3.1 & 4.3)

abiotic	consumer	heterotroph
biotic	decomposer	omnivore
autotroph	detritivore	producer
biomass	ecological pyramid	trophic level
biome	food web	
carnivore	herbivore	

What different levels of organization do ecologists study?  
Where does the energy for life processes come from?  
How does energy flow through living systems?  
How efficient is the transfer of energy among organisms in an ecosystem?