

Biology 30

Exam Two (Units 3 & 4) – Nervous System, Endocrine System, Reproductive System

The exam is online made up of 30 multiple choice questions. Please bring a laptop if you have one. You will be provided with a data booklet and you may use a calculator, if needed.

Be sure to check the “Studying For Exams” tab at the bottom of the Biology 30 home page in Moodle. There is information on study tips and links to diploma exam practice questions.

You are responsible for knowing the material presented in the lessons in Moodle, as well as in the Chapters 11 to 15 in the textbook.

Below is a list of some things to focus on while studying. Please keep in mind that this list is not exhaustive, which means you need to have a general understanding of all the topics for Units 3 & 4.

Unit 3:

- Parts of the cell cycle
- Chromosomes
 - haploid and diploid numbers
- Crossing over
- Independent assortment
- Asexual reproduction, alteration of generations, fragmentation, budding
- Phases of meiosis
- Genotype, phenotype
- Dominant, recessive, homozygous, heterozygous
- Punnett squares
 - how to draw them
 - F1 generations, F2 generations
 - Probability of certain offspring having traits/diseases
- Gene mapping – finding distance between genes
- Pedigree charts
- Colorblindness – sexed link trait
- DNA structure
- Enzymes involved in DNA replication
- How to use the mRNA codons and amino acid chart in the data booklet
- DNA to mRNA and vice versa
- Translation & transcription

Unit 4:

- Hardy-Weinberg equations, what the variables mean, and how to use the equations
- Natural selection

- Genetic drift
- Population – definition
- Population density formula (provided on formula sheet) – how to use it
- K-selected life strategy vs. r-selected life strategy
- Density-dependent limiting factor vs. density-independent limiting factor
- Interspecific vs. intraspecific competition
- Population growth curves – lag phase, exponential growth, logistic growth, stable equilibrium, death phase, carrying capacity
- Mutualism, parasitism
- Primary succession, secondary succession
- Pioneer community, climax community
- Per capita growth rate formula (on formula sheet) & how to use it