



UNIWERSYTET
WARMIŃSKO - MAZURSKI
W OLSZTYNIE

UNIVERSITY OF WARMIA AND MAZURY IN OLSZTYN
SCHOOL OF MEDICINE

Syllabus for Entrance Examinations

BIOLOGY

General Biology

Students should be familiar with the following concepts:

Basic biological terminology

The most common types of disease found in the industrialized world

Plant Biology – Basic structure, tissue structure and functioning, photosynthesis, the use of oxygen and carbon dioxide, monocots versus dicots

Mendelian genetics – The transmission of dominant and recessive traits

Non-Mendelian genetics - sex-linked traits, chromosomes and their basic abnormalities, aneuploidy

Cellular Biology – the most common organelles and what they do in the cellular environment, the most common cell types in the human body and their function, the mitochondrial matrix

Biological classification – binomial nomenclature, taxonomy, cladistics, phylogenetics

Evolutionary Biology – speciation, localized adaptations to the environment, natural selection, habituation, imprinting, the formation of modern evolutionary synthesis, the neo-Darwinian synthesis

Population genetics - gene flow and the gene pool, adaptation, genetic recombination

Molecular Biology

Students should be familiar with the following concepts:

The Immune System – Basic components and functioning, the most common diseases of the immune system, inoculation, innate immunity, immunosuppression

Nucleic Acids – DNA, RNA, basic structure and functioning, post-translational modifications, translation versus transcription, basic differences between DNA and RNA

Anaerobic versus aerobic metabolism / respiration

Mitosis and Meiosis – Basic processes, differences and similarities, crossing over

Eukaryotic versus Prokaryotic organisms – characteristics of both, similarities and differences

Blood Typing – The ABO blood group system and the Rhesus (Rh +/-) system, the basics of blood transfusion

Osmotic pressure – basic concepts and how it applies to biological systems

Basic laboratory techniques – centrifugation, fractionation, solubility