**«Genome regulation»**

«M05109 – Biotechnology»

*Individual work of students*

*Manual*

**IWS 1.** General characteristics of regulatory mechanisms. The structure of chromatin, its effect on transcription

**2** Search for scientific publications on the problems of the course, analysis of their content

**IWS 3**The concept of operon and regulon. The control on the transcription initiation level. A promoter, an operator and regulatory proteins. The positive and negative control of the gene expression. The control at the transcription termination level. The catabolism-controlled operons: models of lactose, galactose, arabinose and maltose operons. The attenuator-controlled operons: tryptophan operon model.

**IWS 4** Antibiotics affecting codon phase-dependent binding of aminoacyl-tRNA to the ribosome. Aminoglycoside antibiotics (streptomycin, neomycin, kanamycin, gentamicin, etc.), Their mechanism of action. Tetracyclines as inhibitors of the binding of aminoacyl-tRNA to the ribosome.

**IWS 5** Termination of translation. Termination codon. Termination protein factors of prokaryotes and eukaryotes; Two classes of termination factors and their action mechanisms. Regulation of translation in prokaryotes