



UNIVERSITY "ISMAIL QEMALI" VLORA
FACULTY OF TECHNICAL AND NATURAL SCIENCES
DEPARTMENT OF BIOLOGY

Subject: Cell Biology (BIO 163)

Subject	Cell Biology
Lecturer	Dr. Blerta Laze
Hours per week	Lessons 3 hours, Seminars 1 hour, Laboratories 1 hour
Tipologjia e lëndës	Characteristic formation disciplines of the program
Course/ semester	I/ I
Role of the subject	Obligatory
Program	Bachelor
Credites	8
Code of the subject	BIO 163
Lecturer email	blerta.laze@univlora.edu.al

Description:

The content of Cell Biology intend to provide students with basic knowledge on the morphological and functional organization of prokaryotic and eukaryotic cells, the construction and function of the cell membrane, internal membrane system (endoplasmic reticulum and Golgi apparatus), cytoskeleton and cell organelles like nucleus, mitochondria, chloroplasts, ribosomes and lysosomes. An overview will also be addressed to cellular energy, in particular the processes of photosynthesis and cellular respiration. The processes of replication and transcription of the carriers and transmitters of genetic information (DNA), protein biosynthesis and gene expression control mechanisms will be examined too. Finally, the main aspects that characterize particularly important processes as intracellular signaling, cell cycle and cell division mechanics will be treated.

BASIC CONCEPTS:

- 1 To study the morphological and functional organization of prokaryotic and eukaryotic cells dhe organeleve të tyre
- 2 To study the basic processes of cell signaling and the cell cycle.
- 3 To study the basic processes of protein synthesis

COURSE TOPICS:

Lessions course topics:

- Topic 1** Introduction at Cell Biology. From prokaryotes to eukaryotes.
- Topic 2** The structure and chemical composition of the plasma membrane
- Topic 3** Specialized zones of the plasma membrane
- Topic 4** Membrane transport
- Topic 5** Nerve cell and membrane potential
- Topic 6** Internal membrane system
- Topic 7** Mitochondrion and cellular respiration. Chloroplasts and photosynthesis
- Topic 8** The cytoskeleton and cell movement
- Topic 9** Cellular signaling. The basic principles of cellular communication
- Topic 10** Cell nucleus
- Topic 11** Structure and synthesis of nucleic acids
- Topic 12** RNAs and proteins synthesis
- Topic 13** Control of gene expression

- Topic 14** Regulation of the cell division cycle
- Topic 15** Mitosis and Meiosis in eukaryotic cells

Seminars course topics:

- Topic 1** Introduction at Cell Biology
- Topic 2** From prokaryotes to eukaryotes
- Topic 3** The structure and chemical composition of the plasma membrane
- Topic 4** Specialized zones of the plasma membrane
- Topic 5** Membrane transport
- Topic 6** Nerve cell and membrane potential
- Topic 7** Internal membrane system
- Topic 8** Mitochondrion and cellular respiration. Chloroplasts and photosynthesis
- Topic 9** The cytoskeleton and cell movement
- Topic 10** Cellular signaling. The basic principles of cellular communication
- Topic 11** Cell nucleus
- Topic 12** RNAs and proteins synthesis
- Topic 13** Control of gene expression
- Topic 14** Regulation of the cell division cycle
- Topic 15** Mitosis and Meiosis in eukaryotic cells

Laboratories course topics:

- Topic 1** Microscope structure. Principles of microscope work.
- Topic 2** Microscopic examination of butterfly wing scales
- Topic 3** Prokaryotic and simple eukaryotic cell
- Topic 4** A typical plant cell and a typical animal cell.
- Topic 5** Examination of cells of different tissues under a microscope (I).
- Topic 6** Examination of cells of different tissues under a microscope (II).
- Topic 7** Pigment cells. Pigments and plastids
- Topic 8** Effect of temperature on enzyme activity
- Topic 9** Effect of pH on enzyme activity
- Topic 10** Cell membrane transport
- Topic 11** Mitosis in plant organisms
- Topic 12** Mitosis in animal organisms.
- Topic 13** Meiosis in plant organisms
- Topic 14** Meiosis in animal organisms. Oogenesis.
- Topic 15** Meiosis in animal organisms. Spermatogenesis.

EVALUATION OF THE SUBJECT

TEST	EVALUATION
Test I	25%
Annual assessment: Attendance, Laboratories and Seminars	15%
Final test	60%

Grade evaluation is based on the conversion of the total grade to %, grade 5-10 progressively 41-100%. The student who has less than 75% attendance during the semester will not be included in the final exam, as he will be graded with M (Absence). If the student has attended the course, but does not appear in the next exam, he is assessed NP (Did Not Appear). The course will be evaluated on the basis of the annual evaluation and the final exam. Points earned will be cumulative. Exams will not be repeated for any reason. If you miss the final exam without a valid reason, then you will lose points for the exam you missed.

Grade	4	5	6	7	8	9	10
Vlerësimi	-40	41-50	51-60	61-70	71-80	81-90	91-100

LITERATURE

a) **Basic literature:**

“Biologjia qelizore dhe molekulare”, T. Rexha. ISBN: 978-0-9798352-4-7

Cycle of lectures: Dr. Blerta Laze

Cycle of laboratories materials: Dr. Blerta Laze

b) **Recommended literature:**

Molecular Biology of the Cell,

Bruce Alberts, Alexander Johnson, Julian Lewis, David

Morgan, Martin Raff, Keith Roberts, Peter Walter.

ISBN – 10: 0815344325

ISBN – 13: 978-0815344322

LECTURER

Dr. Blerta Laze

.....