

LABORATORY CLASSES

Plan of laboratory classes for the international students of medical faculty studying biochemistry in English
2026 – 2027 year

Autumn semester

Week N	Date	Topic
1	01.09-04.09	Introduction to practical work. Introduction to biochemistry. The structure of amino acids and peptides. Determination of the protein content in the biological fluids. « <i>Biochemistry: manual for...</i> » (p.4-5); <i>textbook 1</i> (p.3-6); <i>textbook 2</i> (p. 13-28); <i>textbook 3</i> (p. 14-21); <i>lecture material</i> .
2	07.09-11.09	Structure and functions of proteins. Physical and chemical properties of proteins. Mechanisms of protein sedimentation. « <i>Biochemistry: manual for...</i> » (p.5-7); <i>textbook 1</i> (p.6-9); <i>textbook 2</i> (p. 28-35); <i>textbook 3</i> (p. 14-49); <i>lecture material</i> .
3	14.09-18.09	Methods of separation, isolation and purification of proteins. Compound proteins. Gel filtration. « <i>Biochemistry: manual for...</i> » (p.7-8); <i>textbook 1</i> (p.9-11); <i>textbook 3</i> (p. 21-30); <i>lecture material</i> .
4	21.09-25.09	Enzymes, classification, structure, properties. « <i>Biochemistry: manual for...</i> » (p.9-10); <i>textbook 1</i> (p.11-12); <i>textbook 2</i> (p.80-103); <i>textbook 3</i> (p. 49-72); <i>lecture material</i> .
5	28.09-02.10	Regulation of enzyme activity. Determination of enzyme activity. « <i>Biochemistry: manual for...</i> » (p.11-12); <i>textbook 1</i> (p.15-18); <i>textbook 2</i> (p. 91-93,103-113); <i>textbook 3</i> (p. 72-80); <i>lecture material</i> .
6	05.10-09.10	COLLOQUIUM “THE CHEMISTRY OF PROTEINS. ENZYMES” Questions for preparation – see « <i>Biochemistry: manual for...</i> » (p.13)
7	12.10-16.10	Introduction to metabolism. The central metabolic pathways: oxidative decarboxylation of pyruvate, citric acid cycle. Evaluation of TCA cycle functioning. « <i>Biochemistry: manual for...</i> » (p.14-15); <i>textbook 1</i> (p.19-24); <i>textbook 2</i> (p. 71-79, 114-123, 149-150); <i>textbook 3</i> (p. 80-92; 122-136; 140-144); <i>lecture material</i> .
8	19.10-23.10	Biological oxidation. Oxidative phosphorylation. « <i>Biochemistry: manual for...</i> » (p.16-17); <i>textbook 1</i> (p.24-29); <i>textbook 2</i> (p. 124-135, 408-411); <i>textbook 3</i> (p. 86-102); <i>lecture material</i> .
9	26.10-30.10	Digestion of carbohydrates. Glycogenesis and glycogenolysis. Glycolysis. Detection of alcoholic fermentation products. « <i>Biochemistry: manual for...</i> » (p.17-18); <i>textbook 1</i> (p. 30-38); <i>textbook 2</i> (p. 46-56,137-149, 156-167); <i>textbook 3</i> (p. 136-153); <i>lecture material</i> .
10	02.11-06.11	Metabolic pathways of pyruvate. Gluconeogenesis. Aerobic oxidation of glucose to end products (CO ₂ and H ₂ O). Determination of pyruvate in the urine. « <i>Biochemistry: manual for...</i> » (p.18-19); <i>textbook 1</i> (p.21-24,38-42); <i>textbook 2</i> (p. 149-150, 167-171, 118-123); <i>textbook 3</i> (p. 136-145; 153-163); <i>lecture material</i> .
11	09.11-13.11	Secondary pathways of glucose metabolism. Determination of blood glucose. « <i>Biochemistry: manual for...</i> » (p.20-21); <i>textbook 1</i> (p.37,42-46); <i>textbook 2</i> (p. 150-155, 172-176); <i>textbook 3</i> (p. 153-173); <i>lecture material</i> .
12	16.11-20.11	COLLOQUIUM “INTRODUCTION TO METABOLISM. CENTRAL METABOLIC PATHWAYS. TISSUE RESPIRATION. OXIDATIVE PHOSPHORYLATION. CARBOHYDRATE METABOLISM” Questions for preparation – see « <i>Biochemistry: manual for...</i> » (p.21-22)
13	23.11-27.11	Lipid metabolism. Digestion and re-synthesis. Transport of exogenous lipids. Evaluation of lipase activity. « <i>Biochemistry: manual for...</i> » (p.22-24); <i>textbook 1</i> (p.47-52); <i>textbook 2</i> (p. 57-70, 177-178); <i>textbook 3</i> (p. 197-219); <i>lecture material</i> .
14	30.11-04.12	Lipid transport in blood. Cholesterol metabolism. Storage and mobilization of lipids. Determination of plasma beta-lipoproteins. « <i>Biochemistry: manual for...</i> » (p.24-25); <i>textbook 1</i> (p.52-54,60-61); <i>textbook 2</i> (p. 179-182, 207-212); <i>textbook 3</i> (p. 205-231); <i>lecture material</i> .
15	07.12-11.12	Intracellular metabolism of fatty acids. Ketone bodies. Determination of cholesterol in serum. « <i>Biochemistry: manual for...</i> » (p.25-27); <i>textbook 1</i> (p. 54-60,61-63); <i>textbook 2</i> (p. 182-196, 346-349); <i>textbook 3</i> (p. 173-197); <i>lecture material</i> .
16	14.12-18.12	COLLOQUIUM “LIPID METABOLISM” Questions for preparation – see « <i>Biochemistry: manual for...</i> » (p.27)
17	21.12-25.12	Control over practical skills of biochemical analysis. « <i>Biochemistry: manual for...</i> » (p.57-58)
18	28.12-01.01	Credit

Head of the department of biochemistry,
professor



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