

BIOCHEMISTRY II

Study Programme: MIMV Curricular Year: 1st Semester: 2nd Compulsory Credits: 5.0 ECTS

Lecturer(s): José A. Mestre Prates (CCP e R), Mário A. Gonçalves Quaresma, Cristina Mateus Alfaia, Paula Lopes

1. Contact hours:

Lectures – 28, Praticals – 28, Total – 56

2. Objectives:

Learning of the general concepts and fundamentals of bioenergetics and metabolic biochemistry necessary to the understanding at molecular level of biological phenomena occurring in Veterinary Sciences.

3. Programme:

3.1. Theoretical: Principles of bioenergetics. Glycolysis and the catabolism of hexoses. The citric acid cycle. Oxidation of fatty acids. Amino acid oxidation and the production of urea. Oxidative phosphorylation. Photosynthesis and photophosphorylation. Carbohydrate biosynthesis. Lipid biosynthesis. Biosynthesis of amino acids and nucleotides. Integration and hormonal regulation of metabolism.

3.2. Practical: Techniques of enzymatic analysis. Chromatographic techniques. Techniques of protein analysis.

4. Bibliography:

Prates, J. A. M. et al. (2022). *Texto de Apoio das Aulas Teóricas da Disciplina de Bioquímica II*. Edição de 2021/22 & CD-ROM (Bioquímica II, FMV-UL). Lisboa, Faculdade de Medicina Veterinária da Universidade de Lisboa. 160 p. Material fornecido aos Discentes da Disciplina.

Prates, J. A. M. (2022). *Sumários e Protocolos Técnicos das Aulas Práticas da Disciplina de Bioquímica II*. Edição de 2021/22 & CD-ROM (Bioquímica II, FMV-UL). Lisboa, Faculdade de Medicina Veterinária da Universidade de Lisboa. 40 p. Material fornecido aos Discentes da Disciplina.

Nelson, D. L. e Cox, M. M. (2021). *Lehninger Principles of Biochemistry*. 8th edition & CD-ROM (Understand Biochemistry). New York: W. H. Freeman and Company. ISBN 0716743396.

Osgood, M. e Ocorr, K. (2018). *The Absolute, Ultimate Guide to Lehninger Principles of Biochemistry: Study Guide and Solutions Manual*. 8th edition. New York : W. H. Freeman and Company. ISBN 0716759551.

5. Assessment:

Theoretical: written examination (60% of final classification). Practical: written examination (20%) and final report (20%).