**T.C.**

**ATILIM UNIVERSITY FACULTY OF MEDICINE**

**EDUCATION IN 2022-2023 ACADEMIC YEAR**

**ACADEMIC CALENDAR**

**Laboratory Lessons:**

1. Laboratory Instruments, Normal, molar, percent solutions, Spectrophotometer (1 hour, Dr. Kılıç)
2. Analysis of carbohydrates (1 hour, Dr. Kılıç)
3. Kinetics of enzymes (1 hour, Dr. Kılıç)
4. Serum protein determination (1 hour, Dr. Kılıç)
5. Chromatography (1 hour, Dr. Kılıç)
6. Lining and glandular epithelial tissue (1 hour, Dr. Aykanat & Dr. Süzer)
7. Connective tissue proper (1 hour, Dr. Aykanat & Dr. Süzer)
8. Bone and cartilage and blood tissue (1 hour, Dr. Aykanat & Dr. Süzer)
9. Muscle and nervous tissue (1 hour, Dr. Aykanat & Dr. Süzer)
10. Cellular adaptation and injury (1 hour, Dr. Boduroğlu & Dr. Yurdakan)
11. Gram staining (1 hour, Dr. Acar & Dr. Tülek)

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| **COMMITTEE NAME** | **STARTING DATE** | **COMPLETION DATE** |
| **MED 101** | 12.09.2022 | 07.10.2022 |
| **MED 103** | 10.10.2022 | 25.11.2022 |
| **MED 105** | 28.11.2022 | 30.12.2022 |
| **MED 102** | 16.01.2023 | 24.02.2023 |
| **MED 104** | 27.02.2023 | 07.04.2023 |
| **MED 106** | 10.04.2023 | 12.05.2023 |

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| **COMMITTEE NAME** |
|  | **MED 101** | **MED 102** | **MED 103** | **MED 104** | **MED 105** | **MED 106** |
| **ANATOMY PRACTICAL EXAM DATE** |  |  | - |  |  |  |
| **HISTOLOGY AND EMBRYOLOGY PRACTICAL EXAM DATE** |  |  | - |  |  |  |
| **COMMITTEE EXAM DATE** |  |  | 25.11.2022 |  |  |  |

**MED103 THE CELL**

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| **PHASE I COORDINATOR** | Prof. Dr. Veli Cengiz ÖZALP |
| **PHASE I VICE COORDINATOR** | Asst. Prof. Dr. Nuriye Ezgi BEKTUR AYKANAT |
| **CHAIR OF THE MED 103 COMMITTEE** | Asst Prof. Dr. Ayşegül Süzer |
| **MED 103 COMMITTEE DATE RANGE** | 10.10.2022 - 25.11.2022 |
| **ACADEMIC STAFF AT THE MED 103 COMMITTEE** | Prof. Dr. Necla TÜLEK - Medical MicrobiologyProf. Dr. Nedret KILIÇ - Medical BiochemistryProf. Dr. Ahmet SALTIK – Public HealthProf. Dr. Ali ACAR - Medical MicrobiologyProf. Dr. Veli Cengiz ÖZALP - Medical BiologyProf. Dr. Yekbun ADIGÜZEL – Medical BiologyAsst Prof. Dr. Ayşegül Süzer- Histology and EmbryologyAsst. Prof. Dr. Gökşen ÖZ - Medical PharmacologyAsst. Prof. Dr. Nuriye Ezgi BEKTUR AYKANAT - Histology and EmbryologyAsst. Prof. Dr. Esin BODUROĞLU - Medical PathologyAsst. Prof. Dr. Ali Doğan DURSUN - PhysiologyAsst Prof. Dr. Badegül SARIKAYA - Physiology |
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**ACADEMIC STAFF** | **THEORETICAL LECTURE TIME** | **PRACTICAL LECTURE TIME** | **INTERACTIVE EDUCATION****TIME** | **TOTAL TIME** |
| **Histology and Embryology** | 21 | 4 | 3 (Flipped class) | 28 |
| **Medical Microbiology** | 15 | 1 | - | 16 |
| **Medical Pharmacology** | 5 | - | - | 5 |
|  **Medical Biochemistry** | 24 | 5 | - | 29 |
| **Medical Pathology** | 2 | 0 | - | 2 |
| **Physiology** | 8 | - | - | 8 |
| **Medical Biology** | 20 | - | 1 (social study) | 21 |
| **Biophysics** | 4 | - | - | 4 |
| **Public Health** | 6 | - | - | 6 |
| **TOTAL** | 105 | 11 | 4 | 120 |

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| **Office Hour** | - |

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| **CONTENT OF THE MED 103 COMMITTEE**  |
| The basic cell structure, DNA and RNA structure, methods used in DNA isolation, cellular organelles, their structure and function, general overview to cell and cytoplasm, membranous and non-membranous organelles, cell nucleus, cellular secretion, cell skeleton, motor proteins, movement and polarisation in the cell, mechanics of cell division and cytokinesis, laboratory safety and basic principle of microscopy, tissue preparation techniques, classification and histological organisation of tissues, intracellular structures, transition of drugs through the biological membrane, pharmacokinetics of drugs, amino acids, introduction to microbiology, bacteria,viruses |
| **MED 103 COMMITTEE AIM** |
| To introduce basic biochemistry, genetics and microbiology in order to learn the normal structure, function and their pathological conditions. To be able to understand basic interaction techniques and medical applications. To be able to understand the four basic tissue types and organization of them. |
| **MED 103 COMMITTEE LEARNING OBJECTIVES** |
| The students who succeeded in this course;1. Describes the basics of cell structure and cytoskeleton; the intracellular communication pathways.
2. Explains the structure and function of DNA and RNA that store genetic information and interprets the relation between them; DNA isolation from cell.
3. Describes the structures and functions of organelles found in cell.
4. Describes the physiological features of homeostasis and properties of body fluid compartments.
5. Explains the transport system of substances through cell membrane.
6. Explains the electrical electrical potential mechanisms and action potential in a neuron.
7. Understands the mechanism of protein synthesis including transcription, translation, posttrancriptional and posttranslational modifications and intracellular protein trafficking.
8. Lists the cell structures of microorganisms.
9. Understands the classification and metabolism of bacteria; bacterial genetics.
10. Explains the mechanisms of bacterial pathogenesis.
11. Describes the classification, structure and replication of viruses; viral pathogenesis.
12. Describes the structure of a cell under microscope.
13. Applies basic cultivation techniques.
14. Explains the structure of phospholipids and other membrane constituents such as peripheral and integral proteins; their role in cell-cell recognition and the transport of hydrophobic molecules or large molecules through the cell membranes.
15. Classifies and compares the triacylglycerides (triglycerides), glycolipids and phospholipids and describes their unique characteristics.
16. Describes how to calculate normality, molarity and percent volumes of solutions and calculates concentrations based on volume or volume and weight or the degree of saturation.
17. Describes the characteristics of a spectrophotometer; how to use a spectrophotometer and states the Lambert-Beer Law.
18. Lists the composition of glycosaminoglycans, proteoglycans, and glycoproteins that are present in connective tissue and the enzymes involved in the degradation of glycosaminoglycans and the diseases associated with the defective enzymes.
19. Distinguishes between monosaccharides, disaccharides, and polysaccharides; reducing and nonreducing sugars and describes the importance of their conformations and configurations.
20. Describes the structures, reactions of amino acids, peptides and proteins and the three-dimensional (3D) structure of globular proteins, enzymes and the relationship between their structures and functions.
21. Describes the active transport of hydrogen ions during ATP synthesis and the role of NADH, FADH2, and the electron carriers in the electron transport chain.
22. Describes the drug and routes and mechanism of drug administration.
23. Distinguishes cell membrane, nucleus, cytoplasm and organelles with histochemical dyes.
24. Examines and explains the parts of the microscope.
25. Sorts cell skeleton components and indicates their differences.
26. Defines the tissue organization with a histological wiev
27. Counts four basic tissues in human body
28. Counts subtypes of basic tissues in human body
29. Defines the epithelial tissue with a histological wiev
30. Defines the connective tissues with a histological wiev
31. Defines the muscle tissue with a histological wiev
32. Defines the nervous tissue with a histological wiev
33. Describes the diagnostic stages and techniques in a used in routine pathology laboratory
34. Describes the functions of the cell membrane;
35. Explains the selective permeability property of the cell membrane;
36. Explains the properties of structural elements of the cell membrane, their relations with each other, and their functional importance.
37. Explains the transport mechanisms in the cell membrane;
38. Describes the role that osmotic pressure and hydrostatic pressures play together in body fluid balance;
39. Expalains the difference between osmotic and oncotic pressure and defines the physiological meaning of these pressures
40. Define and describe the terms receptor and receptor site.
41. Distinguish between a competitive inhibitor and an allosteric inhibitor.
42. Compare the efficacy and the potency of 2 drugs on the basis oftheir graded dose-response curves.
43. Predict the effect of a partial agonist in a patient in the presence and in the absence of a full agonist.
44. Name the types of antagonists used in therapeutics.
45. Describe the difference between an inverse agonist and a neutral pharmacologic antagonist.
46. Specify whether a pharmacologic antagonist is competitive or irreversible based on its effects on the dose-response curve and the dose-binding curve of an agonist in the presence of the antagonist.
47. Give examples of competitive and irreversible pharmacologic antagonists and of physiologic and chemical antagonists.
48. Describe 2 mechanisms of receptor regulation.
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| **RECOMMENDED BOOKS**1. Emery's Elements of Medical Genetics (15th Edition); Peter D. Turnpenny, Sian Ellard; Elsevier, Philadelphia, 2017.
2. Harper’s Illustrated Biochemistry (31st Edition); Robert K. Murray, David A. Bender, Kathleen M. Botham, Peter J. Kennelly, Victor W. Rodwell, P. Anthony Weil McGrawHill-Lange, 2018
3. Lippincott Illustrated Reviews: Biochemistry (7th Edition); Denise R. Ferrier; Lippincott Wilwims & Wilkins; Philadelphia, 2017.
4. Marks’ Basic Medical Biochemistry A Clinical Approach (5th Edition); Michael Lieberman, Alisa Peet; Wolters Kluwer, Philadelphia, 2018.
5. Thompson & Thompson Genetics in Medicine (8th Edition); Robert L. Nussbaum, Roderick R. McInnes, Huntington F. Willard; ; Elsevier, Philadelphia, 2016.
6. Histology and Cell Biology: An Introduction to Pathology (4th Edition); Abraham Kierszenbaum Laura Tres, Elsevier Saunders, Philadelphia, 2015.
7. Histology: A Text and Atlas: With Correlated Cell and Molecular Biology (7th Edition); Wojciiech Pawlina, Michael H. Ross Walters Kluver, 2020
8. Robbins Basic Pathology (10th edition); 2018 [edited by] Vinay Kumar, Abul K. Abbas, Jon C. Aster
9. Cell and Molecular Biology (2nd edition); Nalini Chandar, PhD, Susan Viselli, PhD, Lipincot Wiliams & Wilkins, 2019.
10. Molecular Cell Biology (8th edition); Harvey Lodish, W.H.Freeman & Co Ltd, 2016.
11. Molecular Biology of the Cell (6th edition); Bruce Alberts, W. W. Norton & Company, 2015.
12. Jawetz, Melnick, & Adelberg's Medical Microbiology, 28e, McGraw-Hill Education, 2019.
13. Medical Microbiology (9th Edition); Murray, Rosenthal, Pfaller, 2020.
14. Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases (9th Edition); Bennett, JE, Dolin R, Blaser MJ. Elsevier, 2019.
15. Lehninger Principles of Biochemistry (7th Edition), David L. Nelson, Michael M. Cox W H Freeman & Co, 2017.
16. Textbook of Biochemistry with Clinical Correlations (7th Edition); Thomas M. Devlin (Editor) John Wiley & Sons, 2011.
17. Integrative Medical Biochemistry: Examination and Board Review, 1st Edition Michael W. King, Mc Graw Hill
18. Bertram G. Katzung, Todd W. Vanderah - Basic & Clinical Pharmacology, 15th Ed., McGraw-Hill Education (2020)
19. Rang and Dale’s Pharmacology, Elsevier Ltd, 9th Ed. 2020
20. Katzung & Trevor’svPharmacologyExamination & Board Review. LANGE medical book 12th Ed. 2019
21. Lippincott® Illustrated Reviews: Pharmacology 7th Ed. Wolters Kluwer 2019
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| **MED 103 COMMITTEE EXAM WEEK** |
| **DATE** | **EXAM NAME** | **EXAM HOUR** |
| 25.11.2022 | MED 103 Committee Exam | 09:30-11:20 |
| **Teaching Methods and Techniques** |

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| [x]  Lecture | [ ]  Case based learning | [ ] Case discussion | [ ] Student presentation |
| [ ]  Role playing | [ ]  Problem Based Learning | [ ] Project | [x]  Homework |
| [x] Laboratory practice | [ ]  Team Based Learning  | [x]  Self Learning | [x]  Flipp class |

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| **Evaluation Method** | Theoretical Exam (80%), Flip clas Learning (5%), Homework (15%) |
| **Language of lectures, practicals and all other applications** | English |
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