

**NEAR EAST UNIVERSITY**

**FACULTY OF MEDICINE**

**PHASE I**

**COURSE CATALOG**

**2022 – 2023**

# COORDINATOR

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# AIM AND LEARNING OBJECTIVES OF PHASE I

## AIM

***To convey*** basic knowledge on organic chemistry, medical biochemistry, medical biology, medical history, behavioral sciences, microbiology, biostatistics, physiology, public health, biophysics, histology and embryology.

***To support*** theoretical knowledge with practical sessions.

***To prepare*** students for clinical practice.

## LEARNING OBJECTIVES

At the end of Phase I, students should be able to:

**KNOWLEDGE**

1.0. give information about organic chemistry, medical biochemistry, medical biology, medical history, behavioral sciences, microbiology, biostatistics, physiology, public health, biophysics, histology and embryology.

2.0. explain structural properties and functions of organic compounds and biomolecules.

3.0. explain structure, function and evolution of the cell at a molecular level.

4.0. define concepts of health and disease

5.0. define social determinants of health, healthy life behaviours and health promotion.

6.0. define the concepts of metabolic pathways in living organisms.

7.0. define theoretical and applied statistical concepts.

8.0. describe basic terms and and concepts about first aid and emergency.

9.0. explain properties and classes of microorganisms.

10.0. describe basic terms and and concepts about biophysics.

11.0. explain psychological development characteristics and cognitive development theory.

**SKILLS**

1.0. apply basic laboratory techniques and use equipments.

2.0. apply first aid skills on models.

3.0. discuss case scenario associated medical condition by making a literature search and present findings.

# PHASE I COURSE OBJECTIVES AND CONTENTS

## Cell Sciences I (course type: required; course code: MED101)

**Course Objective**: The aim of this course is to give knowledge on the structural properties and basic functions of organic compounds and biomolecules; structure, function and evolution of the cell; basic concepts of well-being and disease; control of tobacco consumption.

**Course content:** Structures and reactions of organic compounds; water, solubility, acids, bases, buffers; structure and functions of biomolecules; cellular organization, evolution of the cell, structure and function of cell organelles, extracellular matrix, structure and function of DNA, chromatin, DNA replication, RNA structure and protein synthesis; concepts of well-being and disease; control of tobacco consumption. Behavioral Sciences lectures include psychological development characteristics and cognitive development theory.

## Cell Sciences 2 (course type: required ; course code: MED102)

**Course Objective**: The aim of this committee is to provide the basic concepts of microbiology, biostatistics, enzymology, energy metabolism, and genome properties in cell sciences.

**Course content**:This committee includes basic concepts of biochemistry, biostatistics, medical biology and microbiology. All the theoretical concepts related to properties of enzymes which catalayze all the chemical reactions, principles of bioenergetics; transcription, genetic code and protein synthesis will be covered. Medical microbiology: cellular structures and properties of microorganisms and their importance on human health will be dealt. Sterilization, disinfection, antibiotic action and resistance mechanisms will be investigated in laboratory. Biostatistics lectures include the theoretical and applied statistical concepts.

## Cell Sciences 3 (course type: required ; course code: MED103)

**Course Objective**: The aim of this course is to provide the basic knowledge about the metabolic pathways, cell membrane and structure, transport, signal transduction, mutagenesis, psychological development characteristics and cognitive development theory.

**Course content**: Medical biochemistry: energy metabolism, degradation of carbohydrates, fats and amino acids will be investigated. Medical Biology lectures include mutagenesis, DNA repair, mode of inheritance, cell cycle and control. Histology lectures include cell structure, organelles, nucleus, membrane structure and routine histological methods.

## Cell Sciences 4 (course type: required ; course code MED104)

**Course Objective:** In this committee, it is aimed to provide the students the biochemical metabolic reactions, historical development of the science of medicine, cancer genetics, and the applications of DNA technology and patient centered values through the evolutionary process of medicine, embrogenic development and stem cells.

**Course content:** Medical biochemistry focuses on synthesis of carbohydrates, amino acids, nitrogenous compounds and lipids. DNA and RNA tecnhologies, problem-based learning, prenatal diagnosis, nucleic acid applications in diagnosis and treatment are the contents of the Medical Biology lectures. Physiology: homeostasis, biological membranes, body fluids, transport across the cell membrane and inside the cell, cellular communication, bioelectrical potentials, capillary fluid exchange will be lectured. These lectures are supported by laboratory practices. Biophysics: membrane diffusion, membrane models and potentials, electrical properties of membrane, ion channels, physiological control systems and fundamentals of radiation biophysics will be covered.

## Good Medical Practice 1

**Course Objective:** The aim is to make medical students achieve knowledge, skills and attitudes that they need to become a good doctor. Standardized patient encounters, clinical skills, ethics and professional values, clinical visits, medical humanities, evidence based medicine.

**Course content:** In this course, patient interviews, clinical and examination skills, ethical and professional values, clinical visits, human sciences in medicine, and evidence-based medical sessions are held.

## Atatürk and History of Modern Turkey 1 and 2 (course type: required only for Turkish and Cypriot students; course code: AIT100)

**Course Objective:** This course is for Turkish national and Cypriot students. The aim is to provide knowledge about the history in recent Turkish history.

**Course content:** Beside discussing the definition of the term “Revolution” by giving some examples such as French and Russian Revolutions, AIT101 course mainly focuses on the historical process that laid the basis of the foundation of Modern Turkey. In this context, after presenting a concise political history of the Ottoman Empire and its state mechanism, the political, social and economical developments between the Sultan Selim III Period (1789-1808) and the proclamation of Republic of Turkey by Mustafa Kemal Ataturk in1923, are investigated. AIT102 course focuses mainly on the political, cultural, economical and judiciary reforms that shaped the Modern Turkey, founded by Mustafa Kemal Ataturk. The Six Principles of Atatürk and Kemalizm are also investigated. The place of the Republic of Turkey in the International Political System and Turkish Foreign Policy during Atatürk Era, are the other focus points in the course.

## Turkish Language and Literature 1 and 2 (course type: required only for Turkish and Cypriot students; course code: TUR100)

**Course Objective:** This course is for Turkish national and Cypriot students**.** The aim of the course is to provide the students with knowledge and competences to use the Turkish language correctly.

**Course content:** With TURK101, the definition and importance of language, writing language and its features, general structure and rules of written expression, the rules of spelling and punctuation, plan, theme, point of view, supportive ideas, paragraph writing, composition concept, composition writing rules and plan, composition framework in selected writings, and theme, paragraph correcting, general expression defects, thinking and expression, various types of writing (memory, story, critic, novel etc.), formal writing, (autobiography, petition, report, advertisement, bibliography, official writings scientific writings, articles etc.) and introduction, development and conclusion of articles are analyzed. Written expression course includes the historical development of Turkish language, writing and spelling rules, petition writings, reference writing

and all the subjects related to it. With TURK102, the basic features of verbal language and communication, the main principles of speaking and a good speech, prepared and impromptu speeches, stages of prepared speech, speech types, giving impromptu speech on various subjects, studies on speech samples, verbal expression practices and verbal expression applications, correcting language and expression mistakes in speeches are analyzed. Besides, information about importance of speaking, speech disorders, and using body language and conversation are demonstrated.

## Principles of Atatürk and The History of Turkish Revolution (course type: required only for international students; course code: AIT200)

**Course Objective:** This course is for international students. The aim of the course is to provide the international students with knowledge on Principles of Atatürk and The History of Turkish Revolution.

**Course content:** Beside discussing the definition of the term “Revolution” by giving some examples such as French and Russian Revolutions, AIT103 course mainly focuses on the historical process that laid the basis of the foundation of Modern Turkey. In this context, after presenting a concise political history of the Ottoman Empire and its state mechanism, the political, social and economical developments between the Sultan Selim III Period (1789-1808) and the proclamation of Republic of Turkey by Mustafa Kemal Ataürk in 1923, are examined. In AIT104, information is given on the political, social, economical and cultural transformation in the Republic of Turkey; the six principles of Atatürk and Kemalizm; and Turkish Foreign Policy during the Atatürk period.

## Turkish Language for International Students 1 and 2 (course type: required only for international students; course code: YIT100)

**Course Objective:** This course is for international students**.** The aim of the course is to teach the international students Turkish language at beginner level.

**Course content:** In this course,information is given on basic rules of Turkish, phonetics (sounds, the rules of reading the alphabet), vocabulary (recognition of the structure of words, relations between words), sentence information (sentence organizations, general structure and sentence types), reading-

writing techniques, spelling rules), reading-comprehension (reading comprehension techniques, applications on texts), listening (listening comprehension, taking notes and making the necessary comments, applications on texts suitable for students' own professions), and speech (learning speech techniques, learning certain forms of emphasis and intonation, and applications on texts).

## Written and Oral Communication Skills 1 and 2 (course type: required for all students; course code: ENG 100)

**Course Objective:** This course is given to all students. The aim of the course is to provide the students with knowledge and competences to use the English language correctly.

**Course content:** ENG101 and ENG102 have been designed to develop students’ awareness of the language used in everyday life situations as well as the vocabulary items used in different topics. The courses show the students communicatively useful expressions in their immediate environment. Understanding how the language is used to maintain communication or convey meaning in specific situations is prior to how the structures are put together to form the language.

## ELECTIVE COURSES

### GEC239 Critical Thinking

**Course Objective:** -To explain the concept(s) determined

-Raising awareness about the relevant concept(s) and developing it.

-To discuss the validity of the concept(s) determined.

-Developing selected / identified skills

-In-depth / detailed examination of selected topics

**Course content:** In this course students will learn how to: ­ critically read, listen, and write ­ separate bad information from good information ­ analyze arguments and construct cogent arguments ­ understand causal connections in systems ­ develop intellectual and personal discipline.

### GEC247 Performance Management

**Course Objective:** Performance management can be described as fixed organizational activities directed at attracting, developing and keeping an effective and efficient workforce. Thus, the effectiveness and the quality of the organization are determined by the quality of the staff employed. The aim of this course is to promote innovation, develop critical thinking, develop students ' ideas / knowledge / understanding in the context of selected concepts and have knowledge of how to determine performance standards and expectations.

**Course content:** To enable the employees towards achievement of superior standards of work performance.

### GEC222 Artificial Intelligence in Medical Sciences

Artificial intelligence (AI) is an emerging newer technology that is also being used in medical practice and its role has been advocated for the present coronavirus disease 2019 (COVID-19) pandemic. This digital technology is being used for screening, tracking, early detection, evaluating, and predicting the prognosis of patients. The AI-based technology is also being used for the development of vaccines and serving as a warrior itself in the fight against severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).

The lectures will include:

* Introduction
* History of Artificial Intelligence
* Terminology
* Machine Learning in Computer Vision
* CNN
* 3D Printing
* Internet of Things (IoT)
* Artificial Intelligence in Healthcare
* Clinical Decision Support
* Disease diagnosis, classification and prediction
* Medical Image Analysis
* Health monitoring
* mHealth
* Telehealth, telemedicine
* Internet of Medical Things (IoMT)
* Smart Hospital
* Artificial Intelligence in drug discovery and development
* AI in Medicine
* Digital Pharmacy
* AI in Dentistry
* Cybersecurity
* Future of AI

**INDEPENDENT LEARNING**

**Description:**

Independent learning is also described as ‘personalised learning’, ‘student-centred learning’ and ‘ownership’ of learning and enables shifting of responsibility for the learning process from the teacher to the student. Independent learning

* has a vital role for continuing development of a system of school education that promotes high quality and lifelong learning and social equity and cohesion.

**Benefits of independent learning for students**

Indepent learning aims to achieve the following objectives:

* improved academic performance
* increased motivation and confidence
* greater student awareness of their limitations and their ability to manage them
* enabling teachers to provide differentiated tasks for students
* fostering social inclusion by countering alienation

**What a student should do for learning independently?**

|  |  |  |
| --- | --- | --- |
|  | **Strategies to Enable Independent**  **Learning (Crawford)**   | **Activities to Structured Learning (Keste**  |
| **S**  | Select and focus topic and information needs.  | Diagnose Need  |
| **U**  | Uncover potential sources of information. Learn how to access them.  | Identify Learning Resources  |
| **C**  | Collect, examine, and select suitable resources.  | Identify Learning Resources  |
| **C**  | Compile relevant information from selected sources.  | Use Resources  |
| **E**  | Evaluate, interpret, analyze, and synthesize the information.  | Use Resources  |
| **E**  | Establish and prepare an appropriate format and present the information.  | Use Resources  |
| **D**  | Determine the effectiveness of the whole process.  | Assess learning  |

**References for further reading:**

1. http://www.leeds.ac.uk/educol/documents/193305.pdf
2. http://www.curee.co.uk/files/publication/%5Bsitetimestamp%5D/Whatisindependentlearningandwhatarethebenefits.pdf
3. https://westpoint.edu/sites/default/files/inlineimages/centers\_research/center\_for\_teching\_excellence/PDFs/mtp\_project\_papers/D eLongS\_09.pdf

# ASSESSMENT PROCEDURE

In the first three years of the medical faculty, students are evaluated by MCQ (multiple choice questions) exams and laboratory exams. Four (4) committee exams will be held at the end of each subject committee. At the end of Phase 1, there is also a final examination. Success in each committee exam is not sufficient to pass the year; the student must also successfully complete the final examination. If a student fails in the final exam s/he must take the re sit exam. Re sit exam is generally done in September, please follow the announcements done by the coordinator of each year (phase).

The Assessment Procedure of the Phase I covers exams and scores and their abbrevations that shown below.

**Exams:**

o Committee Exam (CE)

o Final Exam (FE)

o Make-up Exam (MUE)

 o Committee Score (CS)

 o Committee Average Score (AVG)

o Good Medical Practice

 o Final Exam Score (FES)

 o Year End Grade (YEG)

o Grade Point Average (GPA)

All exam grades are between 0-100 points. Assessment approaches, assessment methods and assessment tools related with the exams and score types, are described below:

In CEs,students are given a maximum of 100 MCQs. In the FEs and MUEs the question numbers are 100. The number of questions for the CEs are determined according to the number of lectures in each subject committee. The general rule is one question per hour of lecture. However, when the lecture hours are more than 100 hours then the question numbers are adjusted to be 100 questions max. These MCQs are expected to be answered in 90-120 minutes depending on the number of questions on the exam. As a rule, 1.2 minute is given per question unless the questions are very long questions, in which case additional 5-10 minues are provided for that exam. The answer sheets are evaluated by an optic reader. Four (4) incorrect answers will cancel 1 correct answer. The CE score will be determined automatically by the computer using the following algorithym:

**(The number of correct answers – (the number of wrong answers/4))x(100/y) where y is the number of questions in the CE.**

Results of the laboratory sessions (microbiology, histology and biochemistry), whenever appropriate, will be added to the CE and will yield CS. The letter grades for the students will be assigned according to the table below. The students who obtained ≥ 50% (CC and better) will be considered as successful for that committee exam. However, even if a student fails a specific committee, it is the year end grade that determines if a student passes the whole year.

At the end of the completion of subject committees, the average CSs of the 4 committees (AVG) will be used for the calculation of year end grade. The student’s grade for the FE or the MUE grade, which will replace the FE grade if the student has failed in the FE, will be used for calculation of year end grade. Students will also get a grade for Good Medical Practice (GMP) – Max grade for this is 4%. The formula for calculating the year end grade is as follows:

(AVG \* 0.6) + (FINAL \* 0.36) + GMP = Year end grade

**Grading Scheme and Grades:**

|  |  |  |
| --- | --- | --- |
| **SCORE**  | **GRADE**  | **GRADE POINTS**  |
| 90-100  | AA  | 4,00  | (Excellent)  |
| 80-89  | BA  | 3,50 –3,95  | (Excellent)  |
| 70-79  | BB  | 3,00 – 3,45  | (Very Good)  |
| 60-69  | CB  | 2,50 – 2,95  | (Very Good)  |
| 50-59  | CC  | 2,00 – 2,45  | (Good)  |
| 45-49  | DC  | 1,50 – 1,90  | (Failed)  |
| 40-44  | DD  | 1,00 – 1,40  | (Failed)  |
| 35-39  | FD  | 0,50 – 0,90  | (Failed)  |
| 0-34  | FF  | 0,00  | (Failed)  |

The students who obtained ≥ 50 % will be considered successful. By using the year end grade and grades taken from all compulsory and elective courses, grade point average (GPA) will be calculated.

## EXAM RULES

* When entering all the exams, students are required to bring their student ID cards with them to the exam room. For the final exams, students are also required to bring their fee payment slips showing that they have paid their tuition fees. These are checked by the university’s security and students are not allowed to sit for their final exams if they do not have their payment slips or their student ID cards.
* The goal is to conduct valid and reliable exams. The formal exams should cover the learning outcomes.
* During exams, use of electronic devices (mobiles, intelligent wrist watches etc) is prohibited.
* Cheating in the exams cannot be tolerated. If a student is caught cheating, his paper will be signed by the invigilating instructor at the end of the exam. If the case is taken to the Disciplinary Committee of the Faculty, the student automatically fails the course.
* During the examination you should not talk, look around, attempt to signal or exchange objects of any kind without permission. If you attempt to cheat you will be recorded as having failed and disciplinary action will be taken against you.
* Once a student hands his or her examination papers and leaves the hall he or she may not return to the examination hall for any reason.
* You are not allowed to leave the examination room within the first 30 and last 15 minutes of the examination.
* Even if you think there are some erroneously printed questions you may not ask the examiners on duty anything about the questions.

**General information about the examination:**

* Examination will be graded by an optic reader. An answer sheet will be provided for recording your answers to all of the multiple choice questions. Each answer sheet has 200 fields and each field has 5 marking spaces (A) through (E). The questions are numbered to correspond to the fields and the answers correspond to marking spaces. When you have decided which answer is correct fill in the corresponding marking space on your answer sheet with a soft pencil. If you change your mind erase your first mark completely.
* Each question has one correct answer. For every four wrong answers one correct answer will be cancelled.
* Do not wrinkle, fold or tear your examination answer sheet.
* The question booklet as well as the answer sheet must be returned

Those students found to have committed academic misconduct will face administrative sanctions imposed by the administration of Near East University Faculty of Medicine according to the disciplinary rules and regulations of the Turkish Higher Education Council (YÖK) for students. The standard administrative sanctions include, the creation of a disciplinary record which will be checked by graduate and professional life, result in grade “F” on the assignment, exams or tests or in the class. Students may face suspension and dismissal from the Near East University for up to one school year. In addition, student may loose any academic and non academic scholarships given by the Near East University for up to four years. The appropriate sanctions are determined by the Near East University administration according to egregiousness of the Policy violation.

The following is used as the booklet cover for each exam:

1. Students are requested to read carefully the following instructions, as noncompliance with them may lead loss of marks in the examination.

* 1. Time allowed for this examination is **\_\_** minutes.
	2. Check to be sure that your question booklet has **\_\_\_** questions and **\_\_\_** pages numbered consecutively.
	3. During the examination you should not talk, look around, attempt to signal or exchange objects of any kind without permission. If you attempt to cheat, you will be recorded as having failed and disciplinary action will be taken against you.
	4. Once a student hands his or her examination papers and leaves the hall he or she may not return to the examination hall for any reason.
	5. Even if you think there are some erroneously printed questions you may not ask the examiners on duty anything about the questions.

1. General information about the examination:
	1. This examination will be graded by an optic reader. An answer sheet will be provided for recording your answers to all of the multiple-choice questions. Each answer sheet has 200 fields and each field has 5 marking spaces (A) through (E). The questions are numbered to correspond to the fields and the answers correspond to marking spaces. When you have decided which answer is correct fill in the corresponding marking space on your answer sheet with a soft pencil. If you change your mind erase your first mark completely.
	2. Each question has one correct answer. For every four wrong answers one correct answer will be cancelled.
	3. Do not wrinkle, fold or tear your examination answer sheet.

### THE QUESTION BOOKLET AS WELL AS THE ANSWER SHEET MUST BE RETURNED

**WEEKLY COURSE SCHEDULE and LOCATIONS**

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| --- | --- | --- |
| **COURSE CODE**  | **COURSE**  | **LOCATION**  |
| **MED101**  | Cell Sciences I  | Grand Library  |
| **MED102**  | Cell Sciences II  | Grand Library |
| **MED103**  | Cell Sciences III  | Grand Library |
| **MED104**  | Cell Sciences IV  | Grand Library |
|  |  |  |
| **AIT100**  | Atatürk and History of Modern Turkey I-II |  Distance learning (uzem.neu.edu.tr)  |
| **TUR100** | Turkish Language and Literature I-II  | Distance learning (uzem.neu.edu.tr)  |
| **AIT200**  | Principles of Atatürk and The History of Turkish Revolution I-II (for international student)  | Distance learning (uzem.neu.edu.tr)  |
| **YIT100** | Turkish Language for International Students  | Distance learning (uzem.neu.edu.tr)  |
| **ENG100** | Written and Oral Communication Skills I-II | Distance learning (uzem.neu.edu.tr)  |
| **Elective Courses** |  | Distance learning (uzem.neu.edu.tr)  |

## TEXTBOOKS FOR FURTHER READING

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO**  | **DEPARTMENT**  | **TEXTBOOK**  | **AUTHOR**  | **PUBLISHER**  |
| 1  | Public Health  | Oxford Textbook of Global Public Health, Sixth Edition,  | Detels R.,Gulliford M., Karim A.Q., Tan. C.C.,  | Oxford University Press, 2015ISBN-13: 978-0199661756 ISBN-10: 0199661758  |
| 2  | Public Health  | The New Public Health 3rd Edition  | Theodore Tulchinsky Elena Varavikova   | Hardcover ISBN: 9780124157668 eBook ISBN: 9780124157675 Imprint: Academic Press Published Date: 15th April 2014  |
| 3  | Medical Biology  | Molecular Biology of the Cell  | Alberts, B. | ISBN-13: 978-0815341055ISBN-10: 0815341059   |
| 4  | Medical Biology  | Molecular Cell Biology. 5th ed.  | Lodish, Harvey  | ISBN-13: 978-0716776017ISBN-10: 0716776014 Companion Web Site at www.whfreeman.com/lodis h  |
| 5  | Medical Biology  | Lippincott's Illustrated Reviews os Cell and Molecular Biology   | Series editor: Harvey, Richard A. Nalini Chandar, Susan Vitelli  | Wolters Kluwer Health / Lippincott Williams & Wilkins. 2010. ISBN 9780-7817-9210-3 (alk. paper)  |
| 6  | Medical Biology  | Campbell Biology. 9th ed.  | Campbell, Neil A. Reece J.B.  | Rev. Ed. Of Biology,2009 ISBN-13: 978-0-32155823-7; ISBN-10: 0-32155823-5   |
| 7  | Medical Biology  | Molecular Biology of the Cell, 6th edition | Lewis, Raff, Roberts and Walter | Garland Science/CRC Press ISBN-13: 978-0815345244ISBN-10: 0815345240 |
| 8  | Medical Biology  | Thomson&Thomson Genetics in Medicine. 8th ed.  | Nussbaum, Robert.   | ElsevierISBN-13: 9781437706963 ISBN-10: 1437706967 |
| 9  | Medical Biology  | Genetics, Analysis and Principles, 6th Edition  | Robert J. Brooker  | McGraw Hill ISBN-13: 978-1259616020ISBN-10: 1259616029  |
| 10  | First Aid/Emergency Medicine  | Tintinalli's Emergency Medicine: A Comprehensive Study  |  Judith E. Tintinalli | Publisher McGraw-Hill Education ISBN13 9781260019933  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | Guide |  |  |
| 11  | First Aid/Emergency Medicine  | Tintinalli Acil Tıp  | Prof. Dr. Yıldıray Çete , Prof. Dr. Arzu Denizbaşı , Doç. Dr. Arif Alper Çevik , Doç. Dr. Cem Oktay , Yrd. Doç. Dr. Rıdvan Atilla , | Nobel Tıp Kitabevleri ISBN 9789754209440  |
| 12  | First Aid/Emergency Medicine  | Acil Tıp Cep Kitabı  | Dr Zeynep Kekeç  | Akademisyen Kitabevi   |
| 13  | Medical Microbiology   | Sherris Medical Microbiology, Seventh Edition  | J. Andrew Alspaugh , Megan E. Reller ,Kenneth J. Ryan , Michael Lagunoff , Charles R. Sterling , Nafees Ahmad , Paul Pottinger , Scott Weissman , W. Lawrence Drew , L. Barth Reller  | McGraw-Hill Education ISBN-13: 978-0071818216ISBN-10: 0071818219   |
| 14  | Medical Microbiology   | Medical Microbiology 8th Edition   | Patrick R. Murray PhD (Author), Ken S. Rosenthal PhD (Author), Michael A. Pfaller MD  | Elsevier ISBN-13: 978-0323299565ISBN-10: 0323299563   |
| 15  | Biostatistics  | Biyoistatistik  | Prof.Dr.Kadir Sümbüloğlu, Prof.Dr. Vildan Sümbüloğlu  | Hatiboğlu Yayınevi, ISBN: 9757527122   |
| 16  | Biostatistics  | Statistics in Medicine  | Robert Riffebburgh  | Academic Press, ISBN: 978012384864   |
| 17  | Biophysics  | Elementary Biophysics An Introduction  | PK Srivastava  | Alpha Science, 2005. ISBN 1-84265-193-5  |
| 18  | Biophysics  | Biyofizik  | Gürbüz Çelebi  | Barış Yayınları, 2005. ISBN 975-436-004-9  |
| 19  | Biophysics  | Biyofizik  | Ferit Pehlivan  | Pelikan Yayıncılık, 2014. ISBN 978-605-5529-61-1  |
| 20  | Medical Biochemistry  | Lehninger Principles of Biochemistry. 7th Ed.  | David L. Nelson & Michael M. Cox  | W. H. Freeman Co., 2017 ISBN-13: 978-1-4641-2611-6 ISBN-10: 1-4641-2611-9  |
| 21  | Medical Biochemistry  | Medical Biochemistry, 5th Ed.   | John W. Baynes& Marek H. Dominiczak, | Elsevier Limited, 2019.ISBN-13: 978-0702072994ISBN-10: 0702072990 |
| 22  | Medical Biochemistry  | Lippincott Illustrated Reviews: Biochemistry.  | Denise R. Ferrier  | Wolters Kluwer, 2017 ISBN-13: 978-1496344496 |
|  |  | 7th Ed.  |  | ISBN-10: 1496344499  |
| 23  | Medical Microbiology (Immunology)  | İmmünoloji, Yedinci Baskıdan Çeviri  | Çeviri Editörü: Turgut İmir D.Male J.Brostoff D.B.Roth I.Roitt  | Palme Yayıncılık, ISBN: 978-605-5829-01-8  |
| 24  | Medical Microbiology (Immunology)  | Immunology, Eight Edition  | D.Male J.Brostoff D.B.Roth I.Roitt  | Elsevier ISBN: 978-0-702-04548-6  |
| 25  | Organic Chemistry  | "Organic Chemistry", 11. edition | Graham Solomons, Craig Fryhle, Scott Snyder | John Wiley & Sons Inc. |
| 26  | Organic Chemistry  | Organic Chemistry | Jonathan Clayden Nick Greeves Stuart Warren Peter Wothers  | Oxford University Press  |
| 27  | Good Medical Practice  | Hacettepe Universitesi İyi hekimlik uygulamaları kılavuzu  | Prof.Dr.MelihElçin   | HUTF TıpEğitimiBilişimDalı  |
| 28  | Good Medical Practice  | Teaching and Learning Communication Skills in Medicine  | S.Kurt, J. Silverman  | Radcliffe Medical Press  |
| 29  | Physiology   | Guyton And Hall Textbook Of Medical Physiology, Thirteenth Edition | John E. Hall, Arthur C. Guyton | Elsevier ISBN: 978-1-4557-7005-2 |
| 30  | Physiology   | Ganong’s Review of Medical Physiology Twenty-Third Edition  | Kim E. Barrett Scott Boitano Susan M. Barman Heddwen L. Brooks  | The McGraw-Hill Companies ISBN: 978-0-07-160568-7  |

**COMMITTEE I - MED101 CELL SCIENCES I**

**THEORETICAL LECTURES AND PRACTICAL CLASSES**

**COMMITTEE DURATION: 8 WEEKS**

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| **MED101**  | **CELL SCIENCES I**  | **THEORETICAL** **LECTURES** **(hours)**  | **PRACTICAL** **(hours)**  | **TOTAL**  |
|   | Behavioral Sciences  | 8  | -  | 8  |
| Medical Biochemistry  | 22  | -  | 22  |
| Medical Biology  | 26  | -  | 26  |
| Medical Education and Informatics  | -  | 4  | 4  |
| Organic Chemistry  | 20  | -  | 20  |
| Public Health  | 6  | -  | 6  |
| **TOTAL**  | **82**  | **4**  | **86**  |

**COMMITTEE I – CELL SCIENCES I AIM and LEARNING OBJECTIVES**

### AIM

1. ***To convey*** knowledge on the structural properties and basic functions of organic compounds and biomolecules
2. ***To convey*** structure, function and evolution of the cell
3. ***To convey*** basic concepts of well-being and disease.

### LEARNING OBJECTIVES

At the end of this committee, student should be able to;

1.0. explain how the atoms in organic molecules are bound together and how best to depict organic molecules.

2.0. explain the major functional groups, the correlation between properties of functional groups and molecules and intermolecular forces.

3.0. explain how to classify reactive groups within molecules from the standpoints of acids and bases as well as from electron-rich and electron-poor domains.

4.0. explain how to name many simple organic molecules.

5.0. define the properties of radicals, their formation, and their reactivity.

6.0. explain the structures, properties, and nomenclature of common alcohol and ethers, key molecules that contain such groups.

7.0. describe the unusual properties of water as well as interactions of solutes with water and introduce acids and bases.

8.0. define weak acids and bases and the pH scale, describe the composition of buffers, relate pH, p*K*a and buffer concentration,and highlight the importance of buffers in biological systems.

9.0. explain the structures of monosaccharides, the formation of disaccharides, oligosaccharides, homopolysaccharides, heteropolysaccharides and glycoconjugates.

10.0. explain the structure of nucleotides, the formation of phosphodiester bonds.

11.0. describe the common structural features, classification and acid-base properties of amino acids.

12.0. explain the formation of peptide bonds and protein folding.

13.0. explain the definition, properties and organization of a cells.

14.0. describe the structure and function of the cell’s membrane and endomembrane system

15.0. explain the function and structure of the nucleus, mitochondrion, peroxisome and the other smaller organelles.

16.0. explain the structure, components and function of the cytoskeleton, cell-cell junctions and the extracellular matrix.

17.0. describe the structure of DNA and chromatin and how the structure of each relates to the various functions of the DNA.

18.0. explain the packaging that leads to the chromosome structure and to learn about the structure anomalies that can be seen in chromosomes.

19.0. explain the layout and properties of the human genome and how to apply this knowledge to medicine.

20.0. explain the mechanism of DNA replication, its importance and relevance to human health.

21.0. describe the structure of the mitochondrial genome and the function of the mitochondrion and how these relate to human health.

22.0. explain how physical, cognitive and social changes take place throughout childhood period, newborn reflexes and their implications, cognitive development stages of Piaget.

23.0. explain definition, scope and branches of public health and importance of healthy life behaviours.

24.0. explain the properties of tobacco addiction, its consequences and the role of physican in tobacco control.

25.0. explain the concepts in family planning and emergency contraception.

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|  | monday | **tuesday**  | **wednesday**  | **thursday** | **friday**  |
| **09:00 - 09:50**  |   |  |   | **Meeting with the** **Phase I** **Coordinators**  | **Meeting with the** **UZEM and Elective** **Courses** **Coordinators**  |
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| **10:00 - 10:50**  |  |
| **11:00 - 11:50**  |  | **Organic Chemistry**  | **Medical Biology**  |
|  | **Introduction to Organic** **Chemistry. Carbon** **Compounds and Chemical Bonds**  | **The Cell: Definition, Evolution and Organization**  |
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| **12:00 - 12:50**  |  | **Organic Chemistry**  | **Medical Biology**  |
|  | **Introduction to Organic** **Chemistry. Carbon** **Compounds and Chemical Bonds**  | **The Cell: Definition, Evolution and Organization**  |
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| **13:00 - 13:50**  |  |  | **Opening and White**  |  |  |
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| **14:00 - 14:50**  |  |  | **Coat Ceremony** **and** **Opening Lecture:**  |  **Independent** **Learning**  | **Independent Learning**  |
| **15:00 - 15:50**  | **ORIENTATION WEEK**  |
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| **16:00 - 16:50**  |  |  |  |  |  |
|  | **monday**  | **tuesday**  | **wednesday**  | **thursday**  | **friday**  |
| **09:00 - 09:50**  | **Medical Biology**  | **Medical Biochemistry**  | **Medical Biology**  | **Organic Chemistry**  | **Medical Biology**  |
| **The Cell: Definition, Evolution and Organization**  | **Water, Solubility, Acids and Bases**  | **Cell Membrane**  | **An Introduction to Organic Reactions: Acids and Bases**  | **Cell Membrane**  |
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| **10:00 - 10:50**  | **Medical Biology**  | **Medical Biochemistry**  | **Medical Biology**  | **Organic Chemistry**  | **Medical Biology**  |
| **The Cell: Definition, Evolution and Organization**  | **Water, Solubility, Acids and Bases**  | **Cell Membrane**  | **An Introduction to Organic Reactions: Acids and Bases**  | **Cell Membrane**  |
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| **11:00 - 11:50**  | **Medical Biochemistry**  | **Medical Biochemistry**  | **Organic Chemistry**  | **Medical Biochemistry**  | **Organic Chemistry**  |
| **Introduction to Biochemistry:** **Chemical Bonds and Reactivity**  | **Water, Solubility, Acids and Bases**  | **Representative Carbon** **Compounds: Functional Groups**  | **Weak Acids, Weak Bases, PH and Buffers**  | **Alkanes, alkenes, alkynes**  |
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| **12:00 - 12:50**  | **Medical Biochemistry**  | **Independent Learning**  | **Organic Chemistry**  | **Medical Biochemistry**  | **Organic Chemistry**  |
| **Introduction to Biochemistry:** **Chemical Bonds and Reactivity**  | **Representative Carbon** **Compounds: Functional Groups**  | **Weak Acids, Weak Bases, PH and Buffers**  | **Alkanes, alkenes, alkynes**  |
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| **13:00 - 16:50**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  |
|  | **monday**  | **tuesday**  | **wednesday**  | **thursday**  | **friday**  |
| **09:00 - 09:50**  | **Public Health**  | **Behavioral Sciences**  | **Organic Chemistry**  | **Medical Biology**  | **Medical Biology**  |
| **Healthy Lifestyle Behaviors**  | **Normality in Medicine**  | **Alkanes, alkenes, alkynes**  | **Organelles: The** **Endomembrane System (ER,** **Golgi, Lysosome-Protein Trafficing)**  | **Organelles: The Nucleus,** **Mitochondrion, Peroxisome and the others)**  |
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| **10:00 - 10:50**  | **Public Health**  | **Behavioral Sciences**  | **Organic Chemistry**  | **Medical Biology**  | **Medical Biology**  |
| **Healthy Lifestyle Behaviors**  | **Normality in Medicine**  | **Alkanes, alkenes, alkynes**  | **Organelles: The** **Endomembrane System (ER,** **Golgi, Lysosome-Protein Trafficing)**  | **Organelles: The Nucleus,** **Mitochondrion, Peroxisome and the others)**  |
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| **11:00 - 11:50**  | **Behavioral Sciences**  | **Public Health**  | **Public Health**  | **Medical Biology**  | **Medical Biology**  |
| **Introduction to Behavioral Science in Medicine**  | **Health Consequences of** **Tobacco Dependency and Tobacco Control**  | **Family Planning and Emergency Contraception**  | **Organelles: The** **Endomembrane System (ER,** **Golgi, Lysosome-Protein Trafficing)**  | **Organelles: The Nucleus,** **Mitochondrion, Peroxisome and the others)**  |
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| **12:00 - 12:50**  | **Behavioral Sciences**  | **Public Health**  | **Public Health**  | **Independent Learning**  | **Independent Learning**  |
| **Introduction to Behavioral Science in Medicine**  | **Physician's Responsibility in Tobacco Control**  | **Family Planning and Emergency Contraception**  |
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| **13:00 - 16:50**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  |
|  | **monday**  | **tuesday**  | **wednesday**  | **thursday**  | **friday**  |
| **09:00 - 09:50**  | **Independent Learning**  | **Independent Learning**  | **Organic Chemistry**  | **Organic Chemistry**  | **Medical Biology**  |
| **Stereochemistry: Chiral Molecules**  | **Alkyl Halides**  | **Cell Cytoskeleton, cell-cell junctions and the ECM**  |
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| **10:00 - 10:50**  | **Medical Biochemistry**  | **Medical Biochemistry**  | **Organic Chemistry**  | **Organic Chemistry**  | **Medical Biology**  |
| **Carbohydrates: Structure of** **Monosaccharides and** **Carbohydrate Derivatives**  | **Heteropolysaccharides: Structure and Functions**  | **Stereochemistry: Chiral Molecules**  | **Alkyl Halides**  | **Cell Cytoskeleton, cell-cell junctions and the ECM**  |
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| **11:00 - 11:50**  | **Medical Biochemistry**  | **Medical Biochemistry**  | **Medical Biochemistry**  | **Medical Biology**  | **Organic Chemistry**  |
| **Carbohydrates: Structure of** **Monosaccharides and** **Carbohydrate Derivatives**  | **Heteropolysaccharides: Structure and Functions**  | **Chemical Structure of Nucleotides**  | **Cell Cytoskeleton, cell-cell junctions and the ECM**  | **Radical Reactions**  |
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| **12:00 - 12:50**  | **Independent Learning**  | **Independent Learning**  | **Medical Biochemistry**  | **Medical Biology**  | **Organic Chemistry**  |
| **Chemical Structure of Nucleotides**  | **Cell Cytoskeleton, cell-cell junctions and the ECM**  | **Radical Reactions**  |
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| **13:00 - 16:50**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  |

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|  | **monday**  | **tuesday**  | **wednesday**  | **thursday**  | **friday**  |
| **09:00 - 09:50**  | **Independent Learning**  |  | **Organic Chemistry**  | **Good Medical Practice**  | **Independent Learning**  |
| **Alcohols, Phenols, Thiols and** **Ethers**  | **Hand Washing** **Introduction Lecture**  |
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| **10:00 - 10:50**  | **Organic Chemistry**  | **Organic Chemistry**  | **Medical Biochemistry**  |
| **Alcohols, Phenols, Thiols and** **Ethers**  | **Aromatic Compounds**  | **Amino Acids: Classification and Chemical Structure**  |
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| **11:00 - 11:50**  | **Behavioral Sciences**  | **Organic Chemistry**  | **Medical Biochemistry**  |
| **Sensation and Perception**  | **Aromatic Compounds**  | **Amino Acids: Classification and Chemical Structure**  |
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| **12:00 - 12:50**  | **Behavioral Sciences**  | **Independent Learning**  | **Independent Learning**  |
| **Sensation and Perception**  |
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| **13:00 - 16:50**  | **Independent Learning**  |  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  |
|  | **monday**  | **tuesday**  | **wednesday**  | **thursday**  | **friday**  |
| **09:00 - 09:50**  | **Good Medical Practice**  | **Good Medical Practice**  | **Behavioral Sciences**  | **Medical Biology**  | **Medical Biochemistry**  |
| **Developmental Psychology**  | **Chromosome structure, function and anomalies**  | **Peptide Bond, Peptides,** **Polypeptides and Folding of** **Peptides**  |
| **Hand Washing**  | **Hand Washing**  |  |  |  |
| **10:00 - 10:50**  | **Behavioral Sciences**  | **Medical Biology**  | **Medical Biochemistry**  |
| **Developmental Psychology**  | **Chromosome structure, function and anomalies**  | **Peptide Bond, Peptides,** **Polypeptides and Folding of** **Peptides**  |
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| **11:00 - 11:50**  | **Medical Biology**  | **Medical Biochemistry**  | **Medical Biology**  |
| **DNA, Chromatin Structure and** **Function**  | **Amino acids: Physical/ chemical** **Properties**  | **DNA Replication**  |
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| **12:00 - 12:50**  |  | **Group II**  | **Medical Biology**  | **Medical Biochemistry**  | **Medical Biology**  |
| **Group I**  | **DNA, Chromatin Structure and** **Function**  | **Amino acids: Reactions and** **Isolation**  | **DNA Replication**  |
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| **13:00 - 16:50**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  |
|  | **monday**  | **tuesday**  | **wednesday**  | **thursday**  | **friday**  |
| **09:00 - 09:50**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  |  |
| **10:00 - 10:50**  | **Medical Biochemistry**  | **Medical Biochemistry**  | **Medical Biology**  |
| **Peptide Bond, Peptides,** **Polypeptides and Folding of** **Peptides**  | **Protein Structure, Structural Analysis and Proteomics**  | **Mitochondria (genome and function)**  |
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| **11:00 - 11:50**  | **Medical Biochemistry**  | **Medical Biochemistry**  | **Medical Biology**  |
| **Peptide Bond, Peptides,** **Polypeptides and Folding of** **Peptides**  | **Protein Structure, Structural Analysis and Proteomics**  | **Mitochondria (genome and function)**  |
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| **12:00 - 12:50**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  |

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| **13:00 - 16:50**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  |  |

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|  | **monday**  | **tuesday** | **wednesday**  | **thursday**  | **friday**  |
| **09:00 - 16:50** **10:00 - 10:50**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **EXAMINATION:** **MED101** **Cell Sciences I Committee**  |
| **11:00 - 11:50**  |
| **12:00 - 12:50**  |
| **13:00 - 13:50**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **EXAMINATION:** **MED101** **Cell Sciences I Committee**  |
| **14:00 - 14:50**  |
| **15:00 - 15:50**  |
| **16:00 - 16:50**  |

**COMMITTEE I – CELL SCIENCES I COMMITTEE ASSESSMENT MATRIX**

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| **LEARNING** **OBJECTIVES**  | **DEPARTMENT**  |  | **Total Exam MCQs**  |  |
| **CE**  | **FE**  | **M-UE**  | **TOTAL**  |
| 1.0-6.0  | Organic Chemistry  | 20  | 6  | 6  | 32  |
| 7.0-12.0  | Medical Biochemistry  | 22  | 7  | 7  | 36  |
| 13.0-21.0  | Medical Biology  | 26  | 8  | 8  | 40  |
| 22.0  | Behavioral Sciences  | 8  | 2  | 2  | 12  |
| 23.0.-25.0  | Public Health  | 6  | 2  | 2  | 10  |
|  | **TOTAL**  | **82**  | **25/100\***  | **25/100\***  | **130**  |

\*In FE and MUE 25 of the questions will be from this committee.

**Abbreviations:**

**MCQ:** Multiple Choice Question

**LPE:** Practical Lecture Evaluation

**CE:** Committee Exam

**CS:** Committee Score

**FE:** Final Exam

**M-UE:** Make-up Exam

**COMMITTEE II - MED102 CELL SCIENCES II**

**THEORETICAL LECTURES AND PRACTICAL CLASSES**

**COMMITTEE DURATION: 9 WEEKS**

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| **MED102**  | **CELL SCIENCES II**  | **THEORETICAL** **LECTURES** **(hours)**  | **PRACTICAL** **(hours)**  | **TOTAL**  |
|   | Biostatistics   | 16   |  -  | 16  |
| Medical Biochemistry   | 28   | 8   | 36   |
| Medical Biology   | 21   | -   | 21   |
| Microbiology   | 26   | 5   | 31   |
| Organic Chemistry   | 12   | -   | 12   |
| Medical Education and Informatics   |  -   | 4   | 4   |
| **TOTAL**  | 103  | 17  | 120  |

**COMMITTEE II – CELL SCIENCES II**

**AIM and LEARNING OBJECTIVES**

## AIM

 1.0. ***to convey*** basic concepts of biostatistics andmicrobiology.

 2.0. ***to convey*** knowledge on enzymology and energy metabolism.

 3.0. ***to convey*** knowledge on genome properties in cell sciences.

## LEARNING OBJECTIVES

At the end of this committee, student should be able to;

1.0. explain the descriptive statistics for two or more variables in a single table design.

2.0. explain basic rules of probability.

3.0. define random sampling, systematic sampling, cluster sampling and stratified sampling.

4.0. identify the structures of storage lipids and structural lipids in membranes.

5.0. identify the structures of water- and fat-soluble vitamins.

6.0. explain general features of enzymes, regulation of enzyme activity, and isozymes.

 7.0. define the principles and use of spectrophotometer.

 8.0. determine the optimum pH for an enzymatic reaction.

 9.0. explain the central dogma and the flow of genetic information in the cell.

10.0. explain how the genetic control mechanism defects can lead to human disease.

11.0. describe the importance and basic steps of DNA repair pathways.

12.0. define the structures of bacteria and their growth requirements.

13.0. explain the mechanisms of action and resistance of antibiotics.

14.0. describe the general structures of viruses, fungi and parasites.

15.0. explain the morphological and microscopic characteristics of bacteria.

16.0. explain the morphological and microscopic characteristics of fungi and parasites.

17.0. define the structure and reactivity of aldehydes and ketones.

18.0. explain the structure and reactivity of various carboxylic acid derivatives.

19.0. describe the structure and synthesis of amides, nitrilesand amines.

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|   | **Monday**  | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| **09:00 - 12:50**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  |
| **13:00 - 13:50**  | **Biochemistry**  | **Medical Biology**  | **Biochemistry**  | **Organic Chemistry**  | **Medical Biology**  |
| **Chemical Structure and Function of Lipids I**  | **RNA Structure**  | **Lipoproteins: Structure and functions**  | **Reactions of Aromatic Compounds**  | **Post Transcriptional Modifications**  |
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| **14:00 - 14:50**  | **Biochemistry**  | **Medical Biology**  | **Biochemistry**  | **Organic Chemistry**  | **Medical Biology**  |
| **Chemical Structure and Function of Lipids I**  | **RNA Structure**  | **Lipoproteins: Structure and functions**  | **Reactions of Aromatic Compounds**  | **Post Transcriptional Modifications**  |
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| **15:00 - 15:50**  | **Medical Biology**  | **Biochemistry**  | **Independent Learning**  | **Medical Biology**  | **Organic Chemistry**  |
| **"Central Dogma" and Flow of Genetic Information**  | **Chemical Structure and Function of Lipids II**  | **Transcription**  | **Aldehyde and Ketones:** **Nucleophilic Addition to the** **Carbonyl Group**  |
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| **16:00 - 16:50**  | **Medical Biology**  | **Biochemistry**  | **Medical Biology**  | **Organic Chemistry**  |
| **"Central Dogma" and Flow of Genetic Information**  | **Chemical Structure and Function of Lipids II**  | **Transcription**  | **Aldehyde and Ketones:** **Nucleophilic Addition to the** **Carbonyl Group**  |
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|  | **Monday**  | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| **09:00 - 10:50**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Microbiology**  |
| **Growth of Bacteria**  |
| **LAB - First Group**  |
| **11:00 - 11:50**  | **Microbiology**  | **Microbiology**  |
| **Growth of Bacteria**  | **Growth of Bacteria**  |
| **LAB - First Group**  |
| **12:00 - 12:50**  | **Microbiology**  |
| **Growth of Bacteria**  | **LAB - Second Group**  |
| **LAB - Second Group**  |  |

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| **13:00 - 13:50**  | **Microbiology**  | **Biochemistry**  | **Microbiology**  | **Organic Chemistry**  | **Independent Learning**  |
| **Microbiol World And Classification of Microorganisms**  | **Coenzymes and Cofactors**  | **Ricettsiae, Mycoplasma, Chlamydiae: General Structure**  | **Carboxylic Acids and Their Derivatives**  |
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| **14:00 - 14:50**  | **Biochemistry**  | **Biochemistry**  | **Microbiology**  | **Organic Chemistry**  | **Medical Biology**  |
| **Structure and Functions of Vitamins**  | **Coenzymes and Cofactors**  | **Growth of Bacteria**  | **Carboxylic Acids and Their Derivatives**  | **Genetic Code and Protein Synthesis**  |
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| **15:00 - 15:50**  | **Biochemistry**  | **Microbiology**  | **Organic Chemistry**  | **Medical Biology**  | **Medical Biology**  |
| **Structure and Functions of Vitamins**  | **Bacterial Cell Structure**  | **Aldehyde and Ketones: Aldol Reactions**  | **Genetic Code and Protein Synthesis**  | **Genetic Code and Protein Synthesis**  |
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| **16:00 - 16:50**  | **Independent Learning**  | **Microbiology**  | **Organic Chemistry**  | **Medical Biology**  | **Independent Learning**  |
| **Bacterial Cell Structure**  | **Aldehyde and Ketones: Aldol Reactions**  | **Genetic Code and Protein Synthesis**  |
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|  | **Monday**  | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| **09:00 - 12:50**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  |

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| **13:00 - 13:50**  | **Biochemistry**  | **Medical Biology**  | **Organic Chemistry**  | **Biochemistry**  | **Biochemistry**  |
| **Principles of** **Bioenergetics**  | **Genetic Control Mechanisms**  | **Amides and Nitriles**  | **Problem Solving (Bioenergetics)**  | **Introduction to Biochemistry** **Laboratory: Laboratory** **Safety and General Information**  |
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| **14:00 - 14:50**  | **Biochemistry**  | **Medical Biology**  | **Organic Chemistry**  | **Biochemistry**  | **Biochemistry**  |
| **Principles of** **Bioenergetics**  | **Genetic Control Mechanisms**  | **Amides and Nitriles**  | **Discussion (Bioenergetics)**  | **Principles and use of Spectrophotometers**  |
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| **15:00 - 15:50**  | **Microbiology**  | **Biochemistry**  | **Medical Biology**  | **Microbiology**  | **Medical Biology**  |
| **Bacterial Metabolism**  | **ATP Cycle**  | **Genetic Control Mechanisms and Diseases**  | **Bacterial Genetics**  | **Mutagenesis**  |
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| **16:00 - 16:50**  | **Microbiology**  | **Biochemistry**  | **Medical Biology**  | **Microbiology**  | **Medical Biology**  |
| **Bacterial Metabolism**  | **ATP Cycle**  | **Genetic Control Mechanisms and Diseases**  | **Bacterial Genetics**  | **Mutagenesis**  |
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|   | **Monday**  | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| **09:00 - 12:50**  | **Biochemistry**  | **Biochemistry**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  |
| **Principles and use of Spectrophotometer**  | **Principles and use of Spectrophotometer**  |
| **LAB - First Group**  | **LAB - Second Group**  |
| **13:00 - 13:50**  | **Microbiology**  | **Microbiology**  | **Organic Chemistry**  | **Biostatistics**  | **Biochemistry**  |
| **Bacteria Important in Human** **Health**  | **Antibiotics: Mechanism of Action and Resistance**  | **Amines**  | **Cross Tables, Bivariate and Multivariate Graphics**  | **Introduction to Enzymes**  |
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| **14:00 - 14:50**  | **Microbiology**  | **Microbiology**  | **Organic Chemistry**  | **Biostatistics**  | **Biochemistry**  |
| **Bacteria Important in Human** **Health**  | **Antibiotics: Mechanism of Action and Resistance**  | **Amines**  | **Cross Tables, Bivariate and Multivariate Graphics**  | **Introduction to Enzymes**  |
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| **15:00 - 15:50**  | **Independent Learning**  | **Independent Learning**  | **Biostatistics**  | **Independent Learning**  |  **Biostatistics**  |
| **Introduction to Statistics and Biostatistics**  | **Probability Theory**  |
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| **16:00 - 16:50**  | **Biostatistics**  |  **Biostatistics**  |
| **Introduction to Statistics and Biostatistics**  | **Probability Theory**  |
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|   | **Monday**  | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| **09:00 - 12:50**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  |
|   |  |   |
| **13:00 - 13:50**  | **Biochemistry**  | **Biochemistry**  | **Independent Learning**  |  **Biostatistics**  | **Biostatistics**  |
| **Enzyme Kinetics**  | **Enzyme Kinetics**  | **Probability Theoretical Distiributions**  | **Sampling**  |
|  |  |  |  |
| **14:00 - 14:50**  | **Biochemistry**  | **Biochemistry**  |  **Biostatistics**  | **Biostatistics**  |
| **Enzyme Kinetics**  | **Enzymes in Diagnosis**  | **Probability Theoretical Distiributions**  | **Sampling**  |
|  |  |  |  |
|  |  |  |  |  |
| **15:00 - 15:50**  | **Independent Learning**  | **Independent Learning**  |  | **Independent Learning**  | **Independent Learning**  |
| **16:00 - 16:50**  |

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|   | **Monday**  | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| **09:00 - 12:50**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning** | **Independent Learning**  | **Independent Learning**  |

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| **13:00 - 16:50**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning** | **Independent Learning**  | **Independent Learning**  |

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|   | **Monday**  | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| **09:00 - 12:50**  |  | **Biochemistry**  |  | **Biochemistry**  |  |
| **Enzymes:** **Optimum pH and Substrate Kinetics**  | **Enzymes:** **Optimum pH and Substrate Kinetics**  |
| **LAB - First Group**  | **LAB - Second Group**  |

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| **13:00 - 13:50**  | **Biochemistry**  | **Biochemistry**  | **Biostatistics**  | **Biostatistics**  | **Microbiology**  |
| **Chemical Structure of Membranes**  | **Introduction and Enzymatic Reactions in Cell Membranes**  | **Descriptive Statistics**  | **Frequency Tables - Single Variable Graphics**  | **General Properties of** **Viruses: Morphology and Chemical Structure**  |
|  |  |  |  |  |
| **14:00 - 14:50**  | **Biochemistry**  | **Biochemistry**  | **Biostatistics**  | **Biostatistics**  | **Microbiology**  |
| **Chemical Structure of Membranes**  | **Introduction and Enzymatic Reactions in Cell Membranes**  | **Descriptive Statistics**  | **Frequency Tables - Single Variable Graphics**  | **General Properties of** **Viruses: Morphology and Chemical Structure**  |
|  |  |  |  |  |
| **15:00 - 15:50**  | **Microbiology**  | **Microbiology**  | **Independent Learning**  | **Independent Learning**  | **Biostatistics**  |
| **Cellular Structure and Genetics of Fungi**  | **Fungi Important in Human Health**  | **Introduction to Inferential Statistics**  |
|  |  |  |
| **16:00 - 16:50**  | **Microbiology**  | **Microbiology**  | **Biostatistics**  |
| **Cellular Structure and Genetics of Fungi**  | **Fungi Important in Human Health**  | **Introduction to Inferential Statistics**  |
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|  | **Monday**  | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| **09:00 - 10:50**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Microbiology**  | **Independent Learning**  |
| **Fungi, Protozoa and** **Helminths** **LAB - First Group**  |
| **11:00 – 12:50**  | **Microbiology**  |
| **Fungi, Protozoa and Helminths**  |
|   |
| **LAB - Second Group**  |

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| **13:00 - 13:50**  | **Microbiology**  | **Microbiology**  | **Microbiology**  | **Independent Learning**  | **Medical Biology**  |
| **Virus host Cell Interaction**  | **Cellular Structure of Protozoa and Helminths**  | **Parasites Important in Human Health**  | **Population Genetics**  |
|  |  |  |  |
| **14:00 - 14:50**  | **Microbiology**  | **Microbiology**  | **Microbiology**  | **Medical Biology**  |
| **Virus host Cell Interaction**  | **Cellular Structure of Protozoa and Helminths**  | **Parasites Important in Human Health**  | **DNA Repair System**  |
|  |  |  |  |
| **15:00 - 15:50**  | **Independent Learning**  | **Medical Biology**  | **Microbiology**  | **Medical Biology**  |
| **Human Genetic Variability and Its Consequences**  | **Sterilization & Disinfection**  | **DNA Repair System**  |
|  |  |  |  |
| **16:00 - 16:50**  | **Medical Biology**  | **Independent Learning**  | **Independent Learning**  |
| **Human Genetic Variability and Its Consequences**  |
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|  | **Monday**  | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| **09:00 - 12:50**  |  | **EXAM WEEK**  |  | **EXAMINATION: Cell Sciences II Committee**  |
|  |   |  |  |   |   |
| **13:00 - 16:50**  |  | **EXAM WEEK**  |  | **EXAMINATION: Cell Sciences II Committee**  |

**COMMITTEE II – CELL SCIENCES II COMMITTEE ASSESSMENT MATRIX**

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| **LEARNING OBJECTIVES**  | **DEPARTMENT**  |  | **Total Exam MCQs**  |  |  |
| **CE**  | **FE**  | **M-UE**  | **TOTAL**  |
| 1.0, 2.0, 3.0  |  Biostatistics  |  | 15  | 5  | 5  | 25  |
| 4.0, 5.0,.6.0  |  Medical Biochemistry  |  | 26  | 8  | 8  | 42  |
| 9.0, 10.0, 11.0  |  Medical Biology  |  | 20  | 6  | 6  | 32  |
| 12.0, 13.0, 14.0  |  Microbiology  |  | 24  | 8  | 8  | 40  |
| 17.0, 18.0, 19.0  |  Organic Chemistry  |  | 10  | 3  | 3  | 16  |
|   |  | **TOTAL** |  **95**  | **30/100\***  | **30/100\***  | **155**  |

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| **LEARNING OBJECTIVES**  | **LAB POINTS**  |
| 7.0, 8.0  | 5 points  |
| 15.0, 16.0  | Two questions from Microbiology laboratory practical are included in the committee exam  |

\*In FE and MUE 30 of the questions will be from this committee.

**Abbreviations:**

**MCQ:** Multiple Choice Question

**LPE:** Practical Lecture Evaluation

**CE:** Committee Exam **CS:** Committee Score

**FE:** Final Exam **M-UE:** Make-up Exam

# COMMITTEE III - MED103 CELL SCIENCES III

# THEORETICAL LECTURES AND PRACTICAL CLASSES

**DATES: FEBRUARY 10-MARCH 20, 2023**

**COMMITTEE DURATION: 6 WEEKS**

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| --- | --- | --- | --- | --- |
| **MED103**  | **CELL SCIENCES III**  | **THEORETICAL** **LECTURES** **(hours)**  | **PRACTICAL** **(hours)**  | **TOTAL**  |
|   | Behavioral Sciences  | 10  | -  | 10  |
| Histology & Embryology  | 8  | 2  | 10  |
| Medical History  | 8  | -  | 8  |
| Medical Biochemistry  | 27  | -  | 27  |
| Medical Biology  | 33  | -  | 33  |
| Medical Education and Informatics  | -  | 4  | 6  |
| **TOTAL**  | 86  | 6  | 92  |

**COMMITTEE III – CELL SCIENCES III**

**AIM and LEARNING OBJECTIVES**

## AIM

1. **to convey** the neurobiological basis of behavior.
2. **to convey** the basic knowledge about the intermediary metabolism, cell membrane and structure, transport, signal transduction, mutagenesis.
3. **to convey** information on cellular structure and functions.

## LEARNING OBJECTIVES

At the end of this committee, student should be able to:

1.0. **define** the roles of neurotransmitters and genes on mood, behavior, thinking and psychiatric disorders.

2.0. **classify** microscope types.

3.0. **define** the structure and function of eukaryotic subcellular organelles.

4.0. **describe** methods used in histology and their purpose.

5.0. **define** the concepts of medicine, disease and health in an evolutionary perspective starting from times before Hippocrates

6.0. **explain** disease and health theories in Ottoman Empire and Islamic World

7.0. **explain** the structure and components of biological membranes.

8.0. **describe** the transportation mechanisms through membranes.

9.0. **explain** signal transduction mechanisms.

10.0. **explain** the metabolisms of macromolecules

 8.1. glucose

 8.2. fatty acids

 8.3. amino acids

11.0. **describe** the modulation of energy metabolism.

12.0. **describe** the cell death mechanisms.

13.0. **explain** the cell cycle mechanisms, their regulation, mitosis, and meiosis.

14.0. **explain** genesis of chromosomal abnormalities, Mendelenian genetics and modes of inheritance.

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|  | **Monday**  | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| **09:00 - 09:50**  | **Medical Biology**  | **Histology and Embryology**  | **Biochemistry**  | **Histology and Embryology**  | **Medical Biology**  |
| **Cell Cycle and Controls**  | **Structure of the Cell: Cell** **Membrane, Organelles and Inclusions**  | **Signal Transduction Mechanisms I**  | **Structure of the Cell: Nucleus, Cytoskeleton**  | **Mitosis**  |
|  |  |  |  |  |
| **10:00 - 10:50**  | **Medical Biology**  | **Histology and Embryology**  | **Biochemistry**  | **Histology and Embryology**  | **Medical Biology**  |
| **Cell Cycle and Controls**  | **Structure of the Cell: Cell** **Membrane, Organelles and Inclusions**  | **Signal Transduction Mechanisms I**  | **Structure of the Cell: Nucleus, Cytoskeleton**  | **Meiosis**  |
|  |  |  |  |  |
| **11:00-11:50**  | **Histology and Embryology**  | **Biochemistry**  | **Medical Biology**  | **Biochemistry**  | **Medical Biology**  |
| **Introduction to Histology and Microscope Types**  | **Hormones, Structure and General Properties**  | **Cell Death Mechanisms**  | **Signal Transduction Mechanisms II**  | **Meiosis**  |
|  |  |  |  |  |
| **12:00 - 12:50**  | **Histology and Embryology**  | **Biochemistry**  | **Medical Biology**  | **Biochemistry**  | **Independent Learning**  |
| **Introduction to Histology and Microscope Types**  | **Hormones, Structure and General Properties**  | **Cell Death Mechanisms**  | **Signal Transduction Mechanisms II**  |
|  |  |  |  |
|  |   |  |  |   |   |
| **13:00 - 16:50**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  |

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|   | **Monday**  | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| **09:00 - 09:50**  | **Independent Learning**  | **Medical Biology**  | **Independent Learning**  | **Independent Learning**  | **Biochemistry**  |
| **Stem Cells and Nuclear Reprogramming**  | **Pentose phosphate and Glucuronic Acid Pathways**  |
|  |  |  |
| **10:00 - 10:50**  | **Medical Biology**  | **Medical Biology**  | **Biochemistry**  | **Biochemistry**  | **Biochemistry**  |
| **Gametogenesis**  | **Stem Cells and Nuclear Reprogramming**  | **Glycolysis and Allosteric Regulation**  | **Entry of Monosaccarides into Glycolysis and Glycogenolysis**  | **Pentose phosphate and Glucuronic Acid Pathways**  |
|  |  |  |  |  |
| **11:00-11:50**  | **Medical Biology**  | **Biochemistry**  | **Biochemistry**  | Biochemistry  | **Biochemistry**  |
| **Gametogenesis**  | **Glycolysis**  | **Glycolysis and Allosteric Regulation**  | **Entry of Monosaccarides into Glycolysis and Glycogenolysis**  | **Pentose phosphate and Glucuronic Acid Pathways**  |
|  |  |  |  |  |
| **12:00 - 12:50**  | **Independent Learning**  | **Biochemistry**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  |
| **Glycolysis**  |
| *Nazmi Özer*  |
| **13:00 - 16:50**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  |

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|  | **Monday**  | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| **09:00 - 09:50**  | **Behavioral Sciences**  | **Medical Biology**  | **Independent Learning**  | **Medical Biology**  | **Behavioral Sciences**  |
| **Neurobiological Basis of Behaviour**  | **Mendel Genetics and Mendelian Principles**  | **Modes of Inheritace**  | **Awareness and Consciousness**  |
|  |  |  |  |
| **10:00 - 10:50**  | **Behavioral Sciences**  | **Medical Biology**  | **Biochemistry**  | **Medical Biology**  | **Behavioral Sciences**  |
| **Neurobiological Basis of Behaviour**  | **Mendel Genetics and Mendelian Principles**  | **Tricarboxylic Acid Cycle and Regulation**  |  **Modes of Inheritace**  | **Awareness and Consciousness**  |
|  |  |  |  |  |
| **11:00-11:50**  | **Medical Biology**  | **Biochemistry**  | **Biochemistry**  | **Biochemistry**  | **Independent Learning**  |
| **Genesis of Chromosomal Abnormalities**  | **Enzyme Deficiency and Anemia**  | **Tricarboxylic Acid Cycle and Regulation**  | **Electron Transport Chain and ATP Synthesis**  |
|  |  |  |  |
| **12:00 - 12:50**  | **Medical Biology**  | **Biochemistry**  | **Independent Learning**  | **Biochemistry**  | **Independent Learning**  |
| **Genesis of Chromosomal Abnormalities**  | **Enzyme Deficiency and Anemia**  | **Electron Transport Chain and ATP Synthesis**  |
|  |  |  |
| **13:00 - 16:50**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  |
|  | **Monday**  | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| **09:00 - 09:50**  | **Behavioral Sciences**  | **First Aid and Emergency**  | **Behavioral Sciences**  | **Behavioral Sciences**  | **Medical Biology**  |
|  **Stress and Health**  | **General Approach to Trauma**  | **Learning and Memory**  | **Defense Mechanisms of Ego**  | **Epigenetics**  |
|  |  |  |  |  |
| **10:00 - 10:50**  | **Behavioral Sciences**  | **First Aid and Emergency**  | **Behavioral Sciences**  | **Behavioral Sciences**  | **Medical Biology**  |
|  **Stress and Health**  | **Examination of Vital Findings**  | **Learning and Memory**  | **Defense Mechanisms of Ego**  | **Epigenetics**  |
|  |  |  |  |  |
| **11:00-11:50**  | **Medical Biology**  | **First Aid and Emergency**  | **Biochemistry**  | **Medical Biology**  | **First Aid and Emergency**  |
| **Modes of Inheritace**  | **Airway Management,** **Respiratory System** **Emergencies, Foreign Body Aspirations**  | **Oxidation of Fatty Acids**  | **Non-Mendelian Inheritance**  | **Shock Descriprion and Types**  |
|  |  |  |  |  |
| **12:00 - 12:50**  | **Medical Biology**  | **Independent Learning**  | **Biochemistry**  | **Medical Biology**  | **First Aid and Emergency**  |
|  **Modes of Inheritace**  | **Oxidation of Fatty Acids**  | **Non-Mendelian Inheritance**  | **Basic Life Support and Advanced Cardiac Support**  |
| *Umut Fahrioğlu*  | *Özlem Dalmızrak*  | *Umut Fahrioğlu*  | *İlker Gelişen*  |
| **13:00 - 16:50**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  |

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|  | **Monday**  | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| **09:00 - 09:50**  | **Good Medical Practice**  | **Good Medical Practice**  | **Biochemistry**  | **Medical Biology**  | **First Aid and Emergency**  |
| **Oxidation of Amino Acids**  | **Cancer Genetics**  | **Hypersensitivity Reactions**  |
|  |  |  |  |  |
| **10:00 - 10:50**  | **Sterile Gloving**  | **Sterile Gloving**  | **Biochemistry**  | **Medical Biology**  | **First Aid and Emergency**  |
| **Oxidation of Amino Acids**  | **Cancer Genetics**  | **Fever Management, Acid-Base Balance Management**  |
|  |  |  |  |  |
| **11:00-11:50**  | **Medical Biology**  | **Biochemistry**  | **Medical Biology**  |
| **Approaches to Medical Pedigrees**  | **Oxidation of Amino Acids**  | **Cancer Genetics**  |
|  |  |  |  |  |
| **12:00 - 12:50**  |  | **Medical Biology**  | **Biochemistry**  | **Medical Biology**  |
| **First Group**  | **Second Group**  | **Approaches to Medical Pedigrees**  | **Oxidation of Amino Acids**  | **Cancer Genetics**  |
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| **13:00 - 16:50**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  |

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|  | **Monday**  | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| **09:00 - 12:50**  |  | **EXAM WEEK**  |  | **EXAMINATION: Cell Sciences III Committee**  |

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| **13:00 - 16:50**  | **EXAM WEEK**  | **EXAMINATION: Cell Sciences III Committee**  |

**COMMITTEE III – CELL SCIENCES III COMMITTEE ASSESSMENT MATRIX**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LEARNING** **OBJECTIVES**  | **DEPARTMENT**  |  |  | **Total Exam MCQs**  |  |
|  | **CE**  | **FE**  | **M-UE**  | **TOTAL**  |
| 1.0  | Behavioral Sciences  | 10  |  | 3  | 3  | 16  |
| 2.0.- 4.0.  | Histology & Embryology  | 9  |  | 2  | 2  | 13  |
| 5.0. – 6.0.  | Medical History  | 8  |  | 2  | 2  | 12  |
| 7.0.- 11.0.  | Medical Biochemistry  | 28  |  | 8  | 8  | 44  |
| 12.0.-14.0  | Medical Biology  | 35  |  | 9  | 9  | 53  |
|   | **TOTAL**  |  | **90**  | **24/100\***  | **24/100\***  | **138**  |

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| **LEARNING OBJECTIVES**  | **LAB POINTS**  |
| 3.0.  | In committee exam 1 lab question will be asked.  |

\*In FE and MUE 24 of the questions will be from this committee.

**Abbreviations: MCQ:**

Multiple

Choice

Question **LPE:**

Practical

Lecture Evaluation **CE:**

Committee

Exam

**CS:** Committee Score

**FE:** Final Exam

**M-UE:** Make-up Exam

**COMMITTEE IV-MED104 CELL SCIENCES IV**

**THEORETICAL LECTURES AND PRACTICAL CLASSES**

**DATES: MARCH 23, 2023-MAY 15, 2023 COMMITTEE DURATION: 8 WEEKS**

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| --- | --- | --- | --- | --- |
| **MED104**  | **CELL SCIENCES 4**  | **THEORETICAL** **LECTURES** **(hours)**  | **PRACTICAL** **(hours)**  | **TOTAL**  |
|   | Biophysics  | 21  |  -  |  21  |
| First Aid and Emergency  | 7  |  -  |  7  |
| Histology & Embryology  | 6  |  -  |  6  |
| Medical Biochemistry  | 20  |  -  |  20  |
| Medical Biology  | 17  |  8  |  25  |
| Physiology  |  9  |  -  |  9  |
| **TOTAL**  | **80**  | **8**  | **88**  |

**MED 104 – CELL SCIENCES IV**

**AIM and LEARNING OBJECTIVES AIMS:**

1.0. to **convey** basic terms and concepts for physiology, medical biology, biophysics, biochemistry, first Aid and emergency, histology and embryology

2.0. to **convey** knowledge on cellular structure and functions.

**LEARNING OBJECTIVES**

 At the end of this committee, student should be able to;

1.0. define both the diffusion law and the transportation of the molecules through the cell membrane.

2.0. explain the movement of the water through the cell membrane and define the meaning of the hypotonic, isotonic and hypertonic solutions

3.0. explain the origin of the resting membrane potential.

4.0. explain the responses of the cell membrane to subthreshold stimulation.

5.0. explain the formation of action potential due to active membrane conductivity.

6.0. explain the structure and types of ion channels in the cell membrane and define general information about their working mechanism

7.0. define the history of radiation, ionizing and non-ionizing radiation, and the disclosure of radiation units.

8.0. explain chemical, biological and physical damage in radiation-based diseases.

9.0. define the biosynthesis of carbohydrates

10.0. define the Biosynthesis of Fatty Acids and its Regulation

11.0. explain the synthesis of membrane lipids (glycerophospholipids and sphingophospholipids) and cholesterol

12.0. define biosynthesis and degradation of purine and pyrimidine nucleotides

13.0. explain the biosynthesis of amino acids and other nitrogen containing compounds.

14.0. define the basic techniques and principles of prenatal diagnosis from the molecular biology and genetics point of view.

15.0. explain the importance of biotechnology in medicine

16.0. explain the genetic linkage of loci on chromosomes

17.0. explain RFLP, PCR, STR and sequence methods used in DNA profiling

18.0. explain why experimental animal usage is important in research.

19.0. explain modern bioinformatics and its applications in medicine

20.0. describe Viral gene therapy and CRISPR/Cas9 gene editing techniques.

21.0. explain the control mechanisms in physiological systems, principles of positive feedback, negative feedback and feed forward mechanisms.

22.0. explain body fluid compartment and its compositions.

23.0. describe basic terms and concepts of first aid.

24.0. explain histological characteristics of cell membrane and functions

25.0. summarize the structure of cytoplasmic organelles and relate it to their functions

26.0. list the cytoskeleton element and describe probable functions

27.0. explain histological characteristics of cell nucleus.

28.0. list the difference between mitosis and meiosis.

29.0. list the difference between male and female gametogenesis.

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|  | **Monday**  | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| **09:00 - 12:50**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  |

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| **13:00 - 13:50**  | **Medical Biology**  | **Biochemistry**  | **Biochemistry**  | **Medical Biology**  | **Biochemistry**  |
| **Prenatal Diagnosis**  | **Biosynthesis of Carbohydrates** **II**  | **Biosynthesis of Fatty Acids and Regulation**  | **DNA and RNA Technologies**  | **Biosynthesis of Lipids**  |
|  |  |  |  |  |
| **14:00 - 14:50**  | **Medical Biology**  | **Biochemistry**  | **Biochemistry**  | **Medical Biology**  | **Biochemistry**  |
| **Prenatal Diagnosis**  | **Biosynthesis of Carbohydrates** **II**  | **Biosynthesis of Fatty Acids and Regulation**  | **DNA and RNA Technologies**  | **Biosynthesis of Lipids**  |
|  |  |  |  |  |
| **15:00 - 15:50**  | **Biochemistry**  | **Medical Biology**  | **Medical Biology**  | **Independent Learning**  | **Medical Biology**  |
| **Biosynthesis of Carbohydrates I**  | **Medical Ethics**  | **DNA and RNA Technologies**  | **DNA and RNA Technologies**  |
|  |  |  |  |
| **16:00 - 16:50**  | **Biochemistry**  | **Medical Biology**  | **Medical Biology**  | **Medical Biology**  |
| **Biosynthesis of Carbohydrates I**  | **Medical Ethics**  | **DNA and RNA Technologies**  | **DNA and RNA Technologies**  |
|  |  |  |  |

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| --- | --- | --- | --- | --- | --- |
|   | **Monday**  | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| **09:00 - 12:50**  |   |   |   |   |   |
| **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  |
|  |
| **13:00 - 13:50**  | **Biochemistry**  | **Medical Biology**  | **Biochemistry**  | **Histology and Embryology**  | **Histology and Embryology**  |
| **Biosynthesis of Nucleotides I**  | **Nucleic Acid Applications in** **Diagnosis, Prognosis and Treatment**  | **Biosynthesis of Nucleotides** **II**  | **Introduction to Human Embryology-II**  | **Introduction to Human Embryology-III**  |
|  |  |  |  |  |
| **14:00 - 14:50**  | **Biochemistry**  | **Medical Biology**  | **Biochemistry**  | **Histology and Embryology**  | **Histology and Embryology**  |
| **Biosynthesis of Nucleotides I**  | **Nucleic Acid Applications in** **Diagnosis, Prognosis and Treatment**  | **Biosynthesis of Nucleotides** **II**  | **Introduction to Human Embryology-II**  | **Introduction to Human Embryology-III**  |
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| **15:00 - 15:50**  | **Independent Learning**  | **Medical Biology**  | **Histology and Embryology**  | **Medical Biology**  | **Independent Learning**  |
| **Nucleic Acid Applications in** **Diagnosis, Prognosis and** **Treatment**  | **Introduction to Human Embryology-I**  | **Gene Mapping**  |
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| **16:00 - 16:50**  | **Independent Learning**  | **Histology and Embryology**  | **Medical Biology**  |
| **Introduction to Human Embryology-I**  | **Gene Mapping**  |
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|  | **Monday**  | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| **09:00 - 12:50**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  |
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| **13:00 - 13:50**  | **Medical Biology**  | **Medical Biology**  | **Biochemistry**  | **Biophysics**  | **Medical Biology**  |
| **DNA Profiling and Forensic Genetics**  | **Experimental Animals**  | **Biosynthesis of Amino** **Acids and Nitrogenous** **Compounds**  | **Osmosis of Molecules Across the Cell Membrane**  | **Elementary Genetic Analysis and Basic Bioinformatics**  |
|  |  |  |  |  |
| **14:00 - 14:50**  | **Medical Biology**  | **Biophysics**  | **Biochemistry**  | **Biophysics**  | **Medical Biology**  |
| **DNA Profiling and Forensic Genetics**  | **Diffusion of Molecules Across the Cell Membrane**  | **Biosynthesis of Amino** **Acids and Nitrogenous** **Compounds**  | **Membrane Model and Genesis of Membrane Potential**  | **Elementary Genetic Analysis and Basic Bioinformatics**  |
| *Mahmut Çerkez Ergören*  | *Aslı Aykaç*  | *Özlem Dalmızrak*  | *Aslı Aykaç*  | *Mahmut Çerkez Ergören*  |
| **15:00 - 15:50**  | **Biochemistry**  | **Biophysics**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  |
| **Biosynthesis of Amino Acids and Nitrogenous Compounds**  | **Diffusion of Molecules Across the Cell Membrane**  |
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| **16:00 - 16:50**  | **Biochemistry**  |  |
| **Biosynthesis of Amino Acids and Nitrogenous Compounds**  |
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|  | **Monday**  | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| **09:00 - 12:50**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  |
| **13:00 - 13:50**  | **Biophysics**  | **Biophysics**  | **Biophysics**  | **Biophysics**  | **Medical Biology**  |
| **Membrane Model and Genesis of Membrane Potential**  | **Membrane Potential Responses to SubThreshold Stimulus**  | **Properties of the Excitable Membrane - I**  | **Properties of the Excitable Membrane - II**  | **Personalized Medicine**  |
|  |  |  |  |  |
| **14:00 - 14:50**  | **Biophysics**  | **Biophysics**  | **Biophysics**  | **Biophysics**  | **Biophysics**  |
| **Membrane Potential Responses to Sub-Threshold Stimulus**  | **Properties of the Excitable Membrane - I**  | **Properties of the Excitable Membrane - II**  | **Kinetics of Ion Exchange**  | **Properties of the Excitable Membrane - II**  |
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| **15:00 - 15:50**  | **Medical Biology**  | **Biochemistry**  | **Biochemistry**  | **Independent Learning**  | **Biophysics**  |
| **Gene Therapy and Genome** **Editting**  | **Posttranslational** **Modification of Proteins and targetting**  | **Posttranslational** **Modification of Proteins and targetting**  | **Kinetics of Ion Exchange**  |
|  |  |  |  |
| **16:00 - 16:50**  | **Medical Biology**  | **Biochemistry**  | **Biochemistry**  |  |
| **Gene Therapy and Genome** **Editting**  | **Posttranslational** **Modification of Proteins and targetting**  | **Protein turnover and significance**  |
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|  | **Monday**  | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| **09:00 - 12:50**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning** | **Independent Learning**  |
| **13:00 - 13:50**  | **Biophysics**  | **Physiology**  | **Physiology**  | **Independent Learning** | **Biophysics**  |
| **Ion Channels**  | **Introduction to Physiology**  | **Water and Body Fluids Compartments, Osmosis**  | **Fundamentals of Radiation Biophysics**  |
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| **14:00 - 14:50**  | **Biophysics**  | **Physiology**  | **Physiology**  | **Biophysics**  |
| **Physiological Control Systems**  | **Homeostasis and** **Physiological Control** **Mechanisms**  | **Water and Body Fluids Compartments, Osmosis**  | **Fundamentals of Radiation Biophysics**  |
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| **15:00 - 15:50**  | **Independent Learning**  | **Independent Learning**  | **Biophysics**  | **Independent Learning**  |
| **Physiological Control Systems**  |
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| **16:00 - 16:50**  | **Biophysics**  |
| **Fundamentals of Radiation Biophysics**  |
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|  | **Monday**  | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| **09:00 - 12:50**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning** |

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| **13:00 - 13:50**  | **Biophysics**  | **Physiology**  | **Biophysics**  | **Physiology**  | **Independent Learning** |
| **Mechanisms of Radiation Damage**  | **Membrane Transport Mechanisms**  | **Problem Solving**  | **The Resting Membrane Potential**  |
|  |  |  |  |
| **14:00 - 14:50**  | **Biophysics**  | **Physiology**  | **Medical History**  | **Medical History**  |
| **Problem Solving: Fundamentals of Radiation**  | **Membrane Transport Mechanisms**  | **Medicine After Hippocrates**  | **Medicine in the Islamic World**  |
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| **15:00 - 15:50**  | **Medical History**  | **Medical History**  | **Medical History**  | **Medical History**  |
| **Medicine Before Hippocrates**  | **Hippocratic Medicine**  | **Medicine After Hippocrates**  | **Ottoman Medicine**  |
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| **16:00 - 16:50**  | **Medical History**  | **Medical History**  |  |     |
| **Medicine Before Hippocrates**  | **Hippocratic Medicine**  |
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|  | **Monday**  | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| **09:00 - 12:50**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  | **Independent Learning**  |
| **13:00 - 13:50**  | **Medical Biology**  | **Medical Biology**  | **Medical Biology**  | **Physiology**  | **Medical Biology**  |
| **Lab Applications (Group I)**  | **Lab Applications (Group II)**  | **Problem Based Learning (Group I)**  |  **Action Potentials and Graded** **Potentials**  | **Problem Based Learning (Group** **II)**  |
|  |  |  |
| **14:00 - 14:50**  | **Medical Biology**  | **Physiology**  | **Medical Biology**  |
| **Problem Based Learning (Group I)**  |  **Action Potentials and Graded** **Potentials**  | **Problem Based Learning (Group** **II)**  |
|  |  |  |
| **15:00 - 15:50**  | **Medical Biology**  | **Independent Learning**  | **Medical Biology**  |
| **Problem Based Learning (Group I)**  | **Problem Based Learning (Group** **II)**  |
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| **16:00 - 16:50**  | **Medical Biology**  | **Medical Biology**  |
| **Problem Based Learning (Group I)**  | **Problem Based Learning (Group** **II)**  |
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|  | **Monday**  | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| **09:00 - 12:50**  | **GOOD MEDICAL** **PRACTICE** **EXAM**  | **Independent** **Learning**  | **Independent Learning**  | **Independent Learning**  | **PHASE I** **IVth Committee** **Exam** *(time will be anounced)* |

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| **13:00 - 16:50**  | **GOOD MEDICAL** **PRACTICE** **EXAM**  | **Independent** **Learning**  | **Independent Learning**  | **Independent Learning**  | **PHASE I** **IVth Committee** **Exam** *(time will be anounced)* |

**COMMITTEE IV – CELL SCIENCES IV COMMITTEE**

**ASSESSMENT MATRIX**

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| --- | --- | --- | --- | --- |
| **LEARNING** **OBJECTIVES**  | **DEPARTMENT**  |  | **Total Exam MCQs**  |  |
| **CE**  | **FE**  | **M-UE**  | **TOTAL**  |
| 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0  | Biophysics  | 20  | 6  | 6  | 32  |
| 9.0, 10.0, 11.0, 12.0, 13.0  | Medical Biochemistry  | 20  | 5  | 5  | 30  |
| 14.0, 15.0, 16.0, 17.0, 18.0, 19.0, 20.0  | Medical Biology  | 27  | 4  | 4  | 35  |
| 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 21.0, 22.0  | Physiology  | 9  | 3  | 3  | 15  |
| 23.0  | First aid and emergency  | 10  | 1  | 1  | 12  |
| 24.0, 25.0, 26.0, 27.0, 28.0, 29.0  | Histology and Embryology  | 6  | 2  | 2  | 10  |
|   | **TOTAL**  | **92**  | **21/100\***  | **21/100\***  | **134**  |

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| **LEARNING OBJECTIVES**  | **LAB POINTS**  |
| 17.0,18.0,19.0,20.0  | For medical Biology practicals, 10 questions will be asked in the committee exam.  |
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|   |   |
|   |   |

\*In FE and MUE 21 of the questions will be from this committee.

**Abbreviations: MCQ:**

Multiple

Choice

Question **LPE:**

Practical

Lecture Evaluation **CE:**

Committee

Exam

**CS:** Committee Score

**FE:** Final Exam

**M-UE:** Make-up Exam

# STUDENT COUNSELLING

Student counselling aims to help students to cope up with their problems to reach their immediate or long-range personal, academic and professional goals.

The counseller will guide the student on issues leading to success, help the student for a better self-actualization and to develop a plan to overcome the difficulties he/she faces in his/her educational and social life at the Faculty.

Student counsellers will be appointed by the Dean and the lists will be announced to the academicians at the beginning of every educational year.

The student should make an appointment with the counseler who will fill the “NEU Student Counselling Form” and keep it for follow-up. This form will contain the contact information of the student and his/her parents, the date of the meeting and the issues addressed. The counseller will guide the student for orientation in the university, faculty and social facilities, regulations and ethical issues as well.

The counsellers are expected to meet the counselees at least twice a year.

The general format of the student counselling form is as following:

|  |
| --- |
| **Near East University Faculty of Medicine Student Counselling Form**  |
|  **Student Name:**  |  **Student No:**  |
|  **Phase:**  |  **Date of Birth (DD/MM/YY):** / /  |
|  **Term Address:**  |  **Home/Permanent Address** (if different from term address):  |
| **Mobile Phone No:**  |
|  **Family Details** (Name, Address, Phone No.)**:**  |
|  **Details of person to contact in case of emergency** (Name, Address, Phone No)  |
| **Date of Counselling**  |   |
| **Supervisor’s Name**  |   |
| **DETAILS** Please detail below the main points of concern with the student’s performance, work habits, behaviour etc.: ...........    |



## https://neu.edu.tr/ http://medicine.neu.edu.tr/