



**Катедра по медицинска биология**

4002 Пловдив, бул. В. Априлов №15А  
тел.: 032 200 671  
biology@mf.mu-plovdiv.bg  
www.medbiology.meduniversity-plovdiv.bg



**Department of Medical Biology**

15A, V. Aprilov Blvd., 4002 Plovdiv  
phone: 00359 32 200 671  
biology@mf.mu-plovdiv.bg  
www.medbiology.meduniversity-plovdiv.bg

## **ACADEMIC STANDARD FOR THE DISCIPLINES**

### **HUMAN BIOLOGY (FACULTY OF MEDICINE)**

### **HUMAN BIOLOGY AND GENETICS (FACULTY OF DENTISTRY)**

### **BIOLOGY (MEDICAL COLLEGE AND FACULTY OF PUBLIC HEALTH)**

#### **1. Aim**

The primary objective of education in the disciplines Human Biology (Medicine), Human Biology and Genetics (Dentistry), Biology (Assistant pharmacist and Physician assistant) is profound understanding of the material, encompassed in the modules Molecular Biology, Cell Biology, Basics of Immunology, Developmental Biology, Population Genetics, and Biology of Parasites (Medicine and Dentistry) and Molecular and Cell Biology and Basics of Immunology (Assistant pharmacist and Physician assistant).

This objective is in accordance with the:

- mission of the university to provide high-quality education.
- course timetable and credit rating (according to ECTS) of the respective disciplines, described in the syllabus.
- qualification characteristics of the respective specialty.
- academic degree (bachelor's or master's).

The objective is entirely consistent with the timing and importance of the respective discipline in the curriculum.

#### **2. Learning content**

The topics and number of hours for lectures and practical lessons are posted on the website of MU-Plovdiv: <https://mu-plovdiv.bg/studenti/programi-grafitsi/uchebni-planove-programi-spetsialnosti/>

The learning content is organized chronologically in such a way that each consecutive lecture and related practical classes are based on already mastered topics and terms. Thus, unnecessary overlap between related disciplines is avoided.

The priority objectives of the university, such as developing the students' personal qualities, encouraging their initiative, creating habits for self-learning and self-education, acquiring key competencies and skills, are reflected in the curriculum of the discipline.

### **3. Prerequisites**

To begin and successfully complete their training in Human Biology (Medicine), Biology and Human Genetics (Dentistry), Biology (Assistant pharmacist and Physician assistant), students should possess basic knowledge of biology and anatomy, which is usually obtained in high school. The student must build on and upgrade this knowledge throughout the course of education.

### **4. Academic staff**

The academic staff of the department includes 2 full professors and 1 associate professor, 7 assistant professors, all of them holding a PhD degree, one is a Doctor of Medical Sciences (DMSc). Seven people on the academic staff have a medical specialty and one is currently enrolled and trained in the "Medical Biology" specialty at the Ministry of Health.

The lectures are given by a professor or associate professor with a scientific degree (PhD or DSc) in the respective doctoral program. If necessary, and with the permission of the head of the department up to 30% of the lectures can be assigned to non-habilitated lecturers holding a PhD degree.

Practical classes are held by habilitated and non-habilitated lecturers.

### **5. Material resources**

The Department of Medical Biology at MU-Plovdiv runs 6 classrooms (total area of 219.54 m<sup>2</sup>) and 4 scientific laboratories (total area of 128.68 m<sup>2</sup>) equipped for educational, scientific and diagnostic work. All classrooms are equipped for multimedia presentations. The laboratory facilities include general equipment (microscopes, laboratory scales, refrigerators, incubators, shakers, homogenizers, centrifuges, electrophoresis systems, trans-illuminators, pH meters, magnetic stirrers, spectrophotometers, PCR thermal cyclers, ice generators, deep freezers, etc.) and specialized scientific and diagnostic equipment (real-time PCR, fluorescence microscopes, cell culture hoods, CO<sub>2</sub> incubators, ELISA readers, system for analysis of mitochondrial function, gel-documentation systems). The department has a rich collection of permanent microscopic preparations used in the practical classes of all disciplines.

## **6. Lectures**

Lectures are prepared and given in the form of multimedia presentations, which are accessible to students on the Office365 platform, in SharePoint.

## **7. Laboratory/practical classes**

Practical classes are held separately for each group. Methodological guidelines, manuals, reagents and consumables for the practical task are provided for every practical task. Tasks can be assigned individually for each student or they may require working in groups. When students work in a group, they are usually divided into subgroups.

During the practical classes, short control tests are carried out regularly.

## **8. Seminars**

Numerous topics are given in advance for independent extracurricular work. Presentations are given by the students during practical classes. Literature recommendations on the topic to be presented are also provided. Students are usually divided into groups, and each group prepares a presentation on a certain topic. This gives priority to teamwork and team discussions. After the presentation all students discuss it, with each presenting group defending their own position on the topic.

The department also organizes public defense of scientific reviews. Candidates choose a topic to work on together with a mentor professor from the department and present it publicly in front of colleagues from the university, guests, and a scientific jury. Students are also given the opportunity to write an essay on a biology topic of interest to them, with the best essays being published and issued in the form of a collection.

## **9. Information resources. Basic literature. Websites**

All lecturers prepare lectures, practical lessons, training tests, and other course materials in the discipline, which are also available in electronic format.

A list of recommended textbooks is given below, with priority on the available resources that are included in the section "basic literature". We also recommend internet resources where appropriate materials for the preparation of the students can be found.

### **Textbooks**

#### *Basic*

- Draganova M., N. Mehterov, Y. Feodorova, Vesselin Alexandrov, M. Kazakova, V. Sarafian. Parasitology. Manual for first-year students in Medicine and Dental Medicine. Publishing house MU-Plovdiv (in print).

### *Additional*

- Bios instant notes. Molecular Biology by A. McLennan, A. Bates, P. Turner, M. White. 2013; 4th edition; Garland Science, Taylor & Francis Group, LLC.
- Bios instant notes. Immunology by P. Lydyard, A. Whelan, M. Fanger. 2011; 3rd edition; Garland Science, Taylor & Francis Group, LLC.
- Human Biology by Starr C. and McMillan B. 2014; 10th edition, BOOKS/COLE.
- Essential Cell Biology by Bruce Alberts, Karen Hopkin, Alexander Johnson, David Morgan, Keith Roberts, Peter Walter, Rebecca Heald. 2023; 6<sup>th</sup> edition, W. W. Norton & Company.
- Paniker's Textbook of Medical Parasitology: As Per the Competency Based Medical Education Curriculum (Mci) by M.D. Paniker, C.K. Jayaram, M.D. Ghosh, Sougata, Pallab Ray, Jagdish Chander. 2020; 9<sup>th</sup> edition, Jaypee Brothers Medical Pub.

### **Manuals**

- Sarafian V., M. Kazakova, M. Draganova, N. Mehterov. Practical book. Medical biology for students in Medicine and Dental Medicine. Publisher: Medical University - Plovdiv ISBN: 978-619-237-041-1 Plovdiv, 2023.
- Feodorova Y., M. Kazakova, V. Alexandrov, N. Mehterov, V. Sarafian. Ed V. Sarafian. Tests in Medical Biology. ISBN: 978-619-7085-87-7, 2017.

### **10. Control assignments**

Students are occupied dynamically and intensively during the semester. It is presumed that the way in which knowledge and skills are acquired is an important factor for their depth, durability and applicability. Tutors should control student progress at least twice during the semester. Ongoing control can be performed through tests or control assignments. Students are provided with timely information and explanations on the control results, which supports their further preparation.

### **11. Individual work and commitment of the students**

Independent work should be supervised by the professor/assistant professor, who should guide the student in both the literary sources and the methods for their acquisition. Training tests for independent work and exercises are provided for the students.

### **12. Collaboration between students and the teaching staff**

This collaboration consists of:

- The teacher's commitment to the preparation of the students and to the difficulties they face while learning the subject. In such cases options for an individual learning program are considered.
- Making use of the meeting hours of the teaching staff for additional consultations.
- Scientific research with outstanding students.
- Including students in teams for scientific tasks, research projects, etc.

### **13. Exams**

Ongoing assessments provided in the curriculum of the specialty are given for:

1. Student's performance in practical classes, individual tasks, and involvement in scientific work/projects.
2. At least one written test.

The biology exam for medical and dental students includes two parts – 1. THEORETICAL EXAM, CONSISTING OF A WRITTEN PART (TEST) AND ORAL EXAM, AND 2. PRACTICAL EXAM IN PARASITOLOGY.

The written part of the exam is a combined test that includes questions of varying difficulty levels from the syllabus and practical classes. The time to complete the test is 60 minutes. Only students who have received at least 40% of the maximum number of points on the test are admitted to the ORAL EXAM. Students who have less than 40% of the maximum number of points on the test are not admitted to the oral interview and receive a grade of "Weak 2" on the biology exam.

Students who successfully pass the test take an oral exam before an examination committee on the same day, on schedule. The exam includes a discussion of the questions from the written assignment, as well as other questions from the syllabus. A committee, consisting of a chairman and two assistants, forms the student's final grade based on the knowledge demonstrated during the oral defense of the student's written answers.

The practical exam in parasitology is considered separately from the theoretical exam, and is not given a numerical grade, but is assessed as "passed" or "failed". Students who have not successfully passed the practical exam in parasitology receive a grade of "Weak 2" on the biology exam regardless of their performance on the theoretical exam. In such a case, the positive grade on the theoretical exam is taken into account during resit or liquidation exam sessions in the current academic year.

The biology exam for pharmacist assistants and physician assistants is a combined test with passive and active questions, tailored to the topics in the relevant syllabus.

## 14. Assessment standards

The standards for assessing students are carefully considered, clearly developed and defined so that student grades objectively reflect their knowledge and preparation.

The examination regulations are designed to minimize the possibility of manipulating the results.

Thus, clear standards for evaluation are developed as follows:

- **Excellent (6)** – for demonstrated independent and logical thinking, additional key knowledge and skills; for excellent knowledge of the course material, presence of a creative element, interpretation of concepts, skills for solving complex problems and correct reasoning for the decisions made; accuracy and rich linguistic culture of the presentation.
- **Very good (5)** – for well-mastered key and additional knowledge, meaningful and correct understanding of the subject matter, demonstrated good skills in applying what has been learned, adequate use of scientific concepts from the field of study, good language culture.
- **Good (4)** – for mastered additional knowledge, good knowledge of the material, but weak independent thinking; relatively good language culture, but with the possibility of inaccuracies in the use of various concepts and terms.
- **Satisfactory (3)** – simple reproduction with a lack of main points and key knowledge on the topic; no readiness to independently use the knowledge gained; poor language culture with many mistakes.
- **Weak (2)** – for demonstrated scant knowledge and gross errors that cannot be the basis for the next levels of training.

At the beginning of classes each semester, students are introduced to the assessment standards, procedures for conducting ongoing control, and opportunities for receiving feedback on their progress during the semester.

## 15. Final grade formation

The final grade determines the extent to which the student has achieved the learning objective set at the beginning. For the specialties "Medicine" and "Dentistry", it includes a grade from a practical exam (pass/fail) and a grade from a theoretical final exam, which includes a written and oral part, described in the "Exam" section. For the specialties "Pharmacist Assistant" and "Physician

Assistant", the assessment is based on the theoretical exam, which is a combined test on the questions from the syllabus.

#### **16. Documentation, result storage and control of the assessment procedure**

- Assessed students have the right and obligation to be informed about the assessment regulation procedures and results, and to make claims and complaints in case of violation of the current rules.
- The student's right under the previous point is valid in cases of identified technical errors or omissions, for example when calculating or assigning grades.
- Corrections to grades in the cases under the previous paragraph in the student booklet, the examination report or in the account in the General Registry the batch in the general ledger are allowed only by the course holder.
- Any disputes and claims by students are addressed in writing to the evaluation team, which should provide a reasonable response by the end of the next working day.
- Established and proven cases of serious violation of the student's rights in the assessment of his knowledge, skills and competencies are referred by written complaint to the relevant Vice-Rector (Regulations for the Academic Activities of MU-Plovdiv).

The examination materials are stored and students are given the opportunity to familiarize themselves with them and the grounds for assessment according to the order and procedure announced in advance. The period in which students are provided with access to the examination materials and results is up to 5 working days after the date of the announcement of the results.

The academic standard for the discipline Human Biology (Faculty of Medicine), Biology and Human Genetics (Faculty of Dentistry), Biology (Medical College and Faculty of Public Health) was approved by the Departmental Council of Ministers on September 29, 2025 and published on the website of MU-Plovdiv.

**Prof. Maria Kazakova, PhD**

*Head of Department of Medical Biology*