**ACADEMIC DISCIPLINE OVERVIEW**

1. **Program data**

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| 1.1. Higher education institution | Grigore T. Popa University of Medicine and Pharmacy Iasi |
| 1.2. Faculty | Medical Bioengineering |
| 1.3. Department | Biomedical Sciences |
| 1.4. Field of study | Health |
| 1.5. The cycle of studies | Bachelor |
| 1.6. Study program / qualification | Balneo-physiokinetotherapy and rehabilitation – english language / Physiokinetotherapist |

**2. Discipline data**

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| 2.1. Name of the discipline / Code | | | | **Microbiology (bacteriology, virusology, parasitology)** | | **RE1311** |
| 2.2. Teaching staff in charge with lectures | | | | **Associate Professor Constantin Munteanu, PhD** | | |
| 2.3. Teaching staff in charge with practical activities | | | | **Associate Professor Constantin Munteanu, PhD** | | |
| 2.4. Year of study | **III** | 2.5. Semester | **2** | 2.6. The type of assessment | **Exam, E2** | |
| 2.7. Discipline type | | **Mandatory** | | **Fundamental discipline** | | |

**3. Estimated total time (hours/semester of didactic activity)**

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| 3.1. Number of hours / week: | | 3.2. Courses number of hours / week | | 3.3. Seminars / practical classes  number of hours / week | | | |
| Semester 1 |  |  | |  | | | |
| Semester 2 | **2** | **1** | | **1** | | | |
| 3.4. Total number of learning hours: | **28** | 3.5. Of which: Courses | **14** | 3.6. Of which: Seminars / practical classes: | | | **14** |
| 3.7. Distribution of individual study time: | | | | | Hours sem. 1 | Hours sem. 2 | |
| Study time using course book materials, bibliography and hand notes | | | | |  | 5 | |
| Supplementary documentation in the library, using specialised platforms via internet and by field work | | | | |  | 5 | |
| Preparation time for seminars / practical classes, study themes, reviews, portfolio and essays | | | | |  | 5 | |
| Tutorship | | | | |  | 2 | |
| Examinations | | | | |  | 2 | |
| Other activities | | | | |  | 7 | |
| Total hours of individual study (*without examinations*) | | | | |  | **22** | |
| 3.8. Total hours per semester | | | | |  | **50** | |
| 3.9. Number of credits | | | | |  | **2** | |

**4. Preconditions (where applicable)**

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| 4.1. of curriculum | Knowledge of the principles of biology, including cell structure and function |
| 4.2. of competences | Laboratory Techniques: ability to work with laboratory techniques |

5. **Conditions (where applicable)**

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| 5.1. for lectures | Video logistics support. |
| 5.2. for seminars / practical classes | Video logistics support.  Laboratory, Microscope, Bacteriology Set |

**6. Specific competences acquired**

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| **Professional competencies** | **C1.1** | Obtaining theoretical and practical knowledge on bacterial infections as well as knowledge on bacteriological diagnosis in the main infectious syndromes. |
| **C1.2** | To acquire skills for:  • prevention of microbial contamination in relation to various risk conditions encountered  • performing a smear for bacteriological examination;  • preliminary identification of pathogenic microorganisms; |

7**.** **Objectives of the study discipline (according to the grid of specific competences acquired)**

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| 7.1. General objective | Understanding the general principles of microbiology |
| 7.2. Specific objectives | Communication – the use of specific terminology, the identification of the objectives to be achieved, the available resources, the conditions for their completion, the work stages, the working times, the related deadlines and the related risks, the identification of the roles and responsibilities in a multidisciplinary team and the application of techniques of communication and effective work within the team |

**8. Contents**

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| **8.1. Lectures** | | **Teaching methods** | **Observations** |
| 1 | The history of microbiology. The world of microorganisms. Biological, taxonomic and pathogenetic meanings of bacterial structures | PPT support | 2 h |
| 2 | Viruses: structure, replication, virus-host cell relations, viral taxonomy, bacteriophages. | PPT support | 2 h |
| 3 | Nutrition, growth and cultivation of bacteria. Microbial genetics | PPT support | 2 h |
| 4 | Microorganism-human host relationships. Indigenous microbiota | PPT support | 2 h |
| 5 | Pathogenicity of mycoorganisms and anti-infective defense. The infection | PPT support | 2 h |
| 6 | Microbiological bases of infection therapy (viral, fungal, parasitic) | PPT support | 2 h |
| 7 | Antibiotherapy in bacterial infections and antibiotic resistance | PPT support | 2 h |

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| **8.2. Practical activities - practical class** | | **Teaching methods** | **Observations** |
| 1 | The microbiology laboratory – organization, functions. Presentation of equipment, devices, laboratory materials. Labor protection measures in the microbiology laboratory. Sterilization and disinfection methods. Sterilization control. Elementary work techniques in the microbiology laboratory. | Practical applications | 2 h |
| 2 | Demonstration of the ubiquity of microorganisms | Practical applications | 2 h |
| 3 | Microbial decontamination in the microbiology laboratory and medical practice | Practical applications | 2 h |
| 4 | Microscopic examination in bacteriological diagnosis. Stains used in bacteriology and parasitology (e.g. coproparasitological, anal print and recognition of parasites in blood) | Practical applications | 2 h |
| 5 | Cultivation of microorganisms (bacteria, viruses, fungi) | Practical applications | 2 h |
| 6 | Antigen-antibody reactions and molecular biology techniques in the microbiology laboratory. | Practical applications | 2 h |
| 7 | Laboratory diagnosis of infection | Practical applications | 2 h |

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| **8.3. Bibliography:** |
| ***Mandatory:*** |
| 1. Course notes, e-Learning platform 2. Sub redactia: Liminița Smaranda Iancu , Introduction to Study Medical Microbiology for Second Year Students of Medicine and Dentistry Faculties Vol. I, Editura "Gr. T. Popa" UMF Iaşi, 2019 3. Gabriele Halwachs-Baumann, Congenital Cytomegalovirus Infection, Springer, 2011 4. Mitchell L. Shiffman, Chronic Hepatitis C Virus, Springer, 2012 5. Germain Velasquez, Vaccines, Medicines and COVID-19, , Springer, 2022 |
|  |
| ***Elective:*** |
| 1. CHIFIRIUC, MARIANA CARMEN, MIHAESCU, G., LAZAR, VERONICA, 2011, Microbiologie   si Virologie Medicala, Ed. Univ. Bucureşti.   1. ARDELEAN I.I. , 2013 . Microbiologie generală volumul 1, Editurea Ars Docendi. |

**9. *Correlation of the discipline contents with the expectations of the epistemic community, professional associations, and representative employers from the afferent program field***

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| Knowledge and abilities are established as didactic objectives and specified as such in the analytic programs that are revised yearly. After their analysis by the study discipline staff, these are discussed and approved in the Curricular Committee, towards curricular harmonization among the various study disciplines. Along this entire process systematic evaluation is performed, directly if possible, regarding the correspondence of the contents to the expectations of the academic community and of the representatives of the social community, professional associations, and employers. |



**10. Evaluation**

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| Type of activity | Assessment criteria | Evaluation methods | Contribution to the final grade |
| Lectures | Acquiring theoretical notions and presented in the course | Written exam.  MCQ Examination | 80 % |
| Practical activities | Activities carried out in laboratory and conducted quality essays. | Colloquium practical activity | Admitted/ Rejected |
| Individual study | Preparation time for seminars / practical classes, study themes, reviews, portfolio and essays.  Study time using coursebook materials, bibliography and hand notes, documentation in the library, using specialised platforms via internet and by field work. | Tests during the semester | 20 % |
| Minimal performance standard:   * knowledge general principles of microbiology | | | |

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| Date | Holder of course / signature, | Holder of practical activities / signature, |
| 14.09.2023 | Associate Professor Constantin Munteanu, PhD | Associate Professor Constantin Munteanu, PhD |

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| Date of approval in the Department Council/Teaching Council, | | |
| 14.09.2023 |  | Department director / signature, |
|  |  | Associate Professor Daniela-Viorelia Matei, MD, PhD |