**COURSE OUTLINE**

1. **GENERAL**

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| **SCHOOL** | School of Health Sciences | | | | |
| **ACADEMIC UNIT** | Faculty of Medicine | | | | |
| **LEVEL OF STUDIES** | Undergraduate | | | | |
| **COURSE CODE** | **IAY502** | **SEMESTER** | | **5th** | |
| **COURSE TITLE** | **MICROBIOLOGY I** | | | | |
| **INDEPENDENT TEACHING ACTIVITIES** *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits* | | | **WEEKLY TEACHING HOURS** | | **CREDITS** |
| Lectures + Laboratory exercises | | | 3 + 2 | | 5 |
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| *Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).* | | |  | |  |
| **COURSE TYPE**  *general background,  special background, specialised general knowledge, skills development* | Basic Course (generalized and specialized background) | | | | |
| **PREREQUISITE COURSES:** | General knowledge of Biology, Biological Chemistry, Clinical Chemistry | | | | |
| **LANGUAGE OF INSTRUCTION and EXAMINATIONS:** | Greek | | | | |
| **IS THE COURSE OFFERED TO ERASMUS STUDENTS** | YES | | | | |
| **COURSE WEBSITE (URL)** | http://ecourse.uoi.gr/enrol/index.php?id=225 | | | | |

1. **LEARNING OUTCOMES**

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| **Learning outcomes** | |
| *The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.*  *Consult Appendix A*   * *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area* * *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B* * *Guidelines for writing Learning Outcomes* | |
| **The Microbiology I course involves the study of microorganisms which are the causative agents of infectious diseases in humans. It addresses the etiology, pathogenesis, epidemiology, laboratory diagnosis, therapeutic management, prevention, and control of infection transmission, according to current knowledge of Microbiology as a distinct scientific field and medical specialty.**  **The Microbiology I course material is designed to introduce medical students to the basic concepts of Microbiology, particularly Bacteriology and Parasitology, and to help them understand the role and pathogenicity of bacteria and parasites in the manifestation of human disease.**  **The course also covers introductory concepts and techniques of classical and modern diagnostic Microbiology, so that the student will have a comprehensive understanding of the procedures and methodologies used in Medical Microbiology for the diagnosis of infectious diseases and the susceptibility testing of isolated strains to antimicrobial agents. Finally, the goal of the course is also to help students understand the interaction of microorganisms with humans, their routes of transmission, protective measures against them, and the role of microorganisms in the emergence of epidemic outbreaks.**  **Upon the successful completion of the course, the student should be able to:**  **• Understand the basic and critical characteristics of microorganisms and their connection to infectious diseases.**  **• Know the tools and techniques for diagnosing infections, both classic and modern.**  **• Distinguish between the various types of bacteria, intracellular and extracellular.**  **• Identify the different types of parasites and arthropods involved in the transmission of disease to humans.**  **• Use methodologies (stains, cultivation, serological techniques, molecular techniques) to isolate and identify pathogenic bacteria and parasites in various clinical samples, test the sensitivity of bacteria to antimicrobial agents, and interpret the results of these methodologies.**  **• Collaborate with classmates during laboratory exercises and present a laboratory result together.** | |
| **General Competences** | |
| *Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?* | |
| *Search for, analysis and synthesis of data and information, with the use of the necessary technology*  *Adapting to new situations*  *Decision-making*  *Working independently*  *Team work*  *Working in an international environment*  *Working in an interdisciplinary environment*  *Production of new research ideas* | *Project planning and management*  *Respect for difference and multiculturalism*  *Respect for the natural environment*  *Showing social, professional and ethical responsibility and sensitivity to gender issues*  *Criticism and self-criticism*  *Production of free, creative and inductive thinking*  *……*  *Others…*  *…….* |
| • Search, analysis, and synthesis of data and information, using the necessary technologies  • Adaptation to new situations (e.g., laboratory environment, hospital environment, emergency situations due to epidemic outbreaks, epidemics, pandemics)  • Decision-making  • Autonomous work  • Teamwork  • Work in an interdisciplinary environment  • Respect for the natural environment  • Demonstration of social, professional, and ethical responsibility and sensitivity to issues of gender, race, age, etc.  • Exercise of criticism and self-criticism  • Promotion of free, creative, and inductive thinking | |

1. **SYLLABUS**

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| - Basic concepts and principles of Microbiology  - Classification, structure, reproduction, and metabolism of bacteria  - Mechanisms of pathogenicity of bacteria  - Role of bacteria in the pathogenesis of diseases  - General principles of laboratory diagnosis - Laboratory diagnosis of bacterial infections  - Human microbiome in health and disease  - Principles of sterilization, disinfection, and antisepsis  - Special Bacteriology - Genera and species of bacteria that cause infections  - *Staphylococcus*, *Streptococcus* and *Enterococcus*  *- Corynebacterium and Listeria*  - *Mycobacterium*  - *Bacillus* and *Clostridium*  - *Neisseria* and *Moraxella*  - *Enterobacteriaceae*  - *Pseudomonas* and other non-fermenting bacteria  - *Campylobacter* and *Helicobacter*  - *Haemophilus*  - *Bordetella*, *Legionella* and *Francisella*  - *Brucella* and *Bartonella*  - *Spirochetes*  - *Chlamydia* and *Mycoplasma*  - *Rickettsia*  - Classification, structure of medically significant parasites - Pathogenesis of parasitic diseases  - Laboratory diagnosis of parasitic diseases  - Protozoa of the intestinal and urogenital tract  - Protozoa of the blood and tissues  - Helminths (nematodes, trematodes, cestodes)  - Arthropods |

1. **TEACHING and LEARNING METHODS - EVALUATION**

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| **DELIVERY** *Face-to-face, Distance learning, etc.* | In the classroom (and laboratory exercise room) face to face with the students of the year |
| **USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY** *Use of ICT in teaching, laboratory education, communication with students* | * Lectures using PowerPoint * Support of the learning process through e-course platform * Weekly 2-hour laboratory exercise in the microbiology laboratory * Communication with students via electronic means (email, Skype, social media) and through in person |
| **TEACHING METHODS**  *The manner and methods of teaching are described in detail.*  *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.*  *The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS* | |  |  | | --- | --- | | ***Activity*** | ***Workload of each students group*** | | Lectures | 42 | | Laboratory exercises | 28 | | Study of literature (books, aids, etc.) | 36 | | Non-guided study | 30 | | Interactive teaching | 12 | | Written examinations | 2 | | Course Total (30 hours of workload per credit) | 150 | |  |  | |  |  | |  |  | |  |  | |  |  | |
| **STUDENT PERFORMANCE EVALUATION**  *Description of the evaluation procedure*  *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other*  *Specifically-defined evaluation criteria are given, and if and where they are accessible to students.* | Comprehensive written examinations including   * Multiple-choice questions and * Short answer and critical thinking questions |

1. **ATTACHED BIBLIOGRAPHY**

*Teaching - study material*

1. Medical Microbiology (9th Ed.) by Patrick Murray, Ken Rosenthal, and Michael Pfaller

2. Microbiology An Introduction (13th Ed.) by Gerard Tortora, Berdell Funke, and Christine Case

3. Additional bibliography (scientific articles, electronic manuals from international health organizations, useful health organization websites, etc.) is posted on the course's electronic page on the e-course platform.