**COURSE OUTLINE**

1. **GENERAL**

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| **SCHOOL** | School of Health Sciences |
| **ACADEMIC UNIT** | Faculty of Medicine |
| **LEVEL OF STUDIES** | Undergraduate |
| **COURSE CODE** | **IAY603** | **SEMESTER** | **6th** |
| **COURSE TITLE** | **MICROBIOLOGY II** |
| **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  | 4 |
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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*
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| **The Microbiology II course is designed to provide students with the knowledge necessary to understand the pathogenic effects of viruses and fungi on humans. The following are taught : Infections and immunity, Infections caused by pathogenic viruses and fungi, Infectious syndromes, Epidemiology and control of infections in the community and hospital, Immunization, Strategy of antiviral and antiparasitic chemotherapy, Diagnostic tests and application of old and new techniques (molecular) for the diagnosis of viral and parasitic infections and detection of resistance genes.****At the end of the Microbiology II course the student should be able to know:*** **the basic principles of immunology, types of immunity and immune mechanisms against bacterial, viral, fungal and parasitic infections**
* **the methods of immunisation and the vaccines available against the pathogens**
* **the biology of viruses, types and classification of viruses, types of virus-cell interaction**
* **human pathogenic viruses, classification, structure, ecology - epidemiology, pathogenesis, human pathogenicity, microbiological laboratory diagnosis, prevention and treatment of infections caused by them**
* **the most important human pathogenic fungi, the diseases they cause and the methods of microbiological diagnosis**
* **the biochemical and microscopic examination of urine and the evaluation of urinalysis**
* **ways of diagnosing infections using immunodiagnostic and molecular methods**
* **the use of molecular techniques in the detection of bacterial toxins and their application to the testing of antimicrobial susceptibility and resistance of microorganisms**
* **methods of epidemiological surveillance of infections in the community and in hospitals**
* **applications of Medical Microbiology in the field of Clinical Microbiology**
* **the microbial causes of infections by location – system, the clinical specimens necessary for the diagnosis of these infections and the appropriate diagnostic tests to be applied**
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| **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…**…….* |
| • Autonomous work• Adaptation to new situations (e.g., laboratory environment, hospital environment, emergency situations due to epidemic outbreaks, epidemics, pandemics)• Teamwork• Search, analysis, and synthesis of data and information, using the necessary technologies• Work in an interdisciplinary environment• Demonstration of social, professional, and ethical responsibility and sensitivity to issues of gender, race, age, etc.• Promotion of free, creative, and inductive thinking• Exercise of criticism and self-criticism• Pre-clinical preparation for the practice of Clinical Medicine |
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1. **SYLLABUS**

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| * + - * Basic immunology (types of immunity, antigens, antibodies, cells of the immune system, antigen recognition by immune cells, immune regulation, hypersensitivity reactions, cytokines, inflammation, immunodeficiency, assessment of immune system function).
			* General Properties of Viruses, Structure of the Viral Particle, Viral Replication in Cells, Virus-Host Interaction
			* Medical Virology
			* Viruses of the family *Adenoviridae*
			* Viruses of the family *Parvoviridae*
			* Viruses of the family *Papovaviridae*
			* Viruses of the family *Herpesviridae*
			* Viruses of the family *Poxviridae*
			* Hepatotropic viruses
			* Viruses of the family *Picornaviridae*
			* Arboviruses
			* Viruses of the family *Coronaviridae*
			* Viruses of the family *Orthomyxoviridae*
			* Viruses of the family *Paramyxoviridae*
			* Viruses of the family *Retroviridae*
			* Viruses of the family *Reoviridae*
			* Viruses of the family *Rhabdoviridae*
			* Prion infections
* General properties of fungi (fungal cytology, fungal reproduction, fungal metabolism, fungal genetics, fungal-microbe interactions).
* Medical Mycology, Systemic and Superficial Fungal Diseases, Skin and Mucosal Fungal Diseases
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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
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| **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* |

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| ***Activity*** | ***Workload of each students group***  |
| Lectures | 39 |
| Laboratory exercises | 20 |
| Study of literature (books, aids, etc.),  | 28 |
| Non-guided study | 25 |
| Interactive teaching | 6 |
| Written examinations |  2 |
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| Course Total (30 hours of workload per credit) |  120 |
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| **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
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1. **ATTACHED BIBLIOGRAPHY**

*Teaching - study material*

1. Medical Microbiology : A Guide to Microbial Infections : Pathogenesis, Immunity, Laboratory Investigation & Control (19th Ed.) by Michael Barer, Will Irving, Andrew Swann, and Nelun Perera

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

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

4. 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.