**COURSE OUTLINE**

1. **GENERAL**

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| **SCHOOL** | School of Health Sciences | | | | |
| **ACADEMIC UNIT** | Department of Biological Applications and Technology | | | | |
| **LEVEL OF STUDIES** | Undergraduate | | | | |
| **COURSE CODE** | ΒΕΥ704 | **SEMESTER** | |  | |
| **COURSE TITLE** | Immunology | | | | |
| **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** |
|  | | | 6 | | 6 |
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| *Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).* | | |  | |  |
| **COURSE TYPE**  *general background,  special background, specialised general knowledge, skills development* | *special background* (obligatory) | | | | |
| **PREREQUISITE COURSES:** | No | | | | |
| **LANGUAGE OF INSTRUCTION and EXAMINATIONS:** | Greek | | | | |
| **IS THE COURSE OFFERED TO ERASMUS STUDENTS** | No | | | | |
| **COURSE WEBSITE (URL)** |  | | | | |

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* | |
| By the completion of the course, the students will possess the basic principles of Immunology. They will recognize the components of the immune system (cells and tissues) and their functions in physiological and pathological situations. They will understand the mechanisms of activation and the effector mechanisms of immune response. At the lab level they understand the technics that are based on the reaction antibody-antigen ((ELISA, WB, FACS) and are able to analyze results. | |
| **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 for, analysis and synthesis of data and information, with the use of the necessary technology* | |

1. **SYLLABUS**

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| 1. Introduction in the fundamental functions of the immune system  2. The role of innate immunity versus adaptive immunity in the defence of the organism.  3. Antigen, antibody and their interaction.  4. Maturation of T and B cells. Lymphocyte development and rearrangement of their receptor genes.  5. Lymphocyte activation. T cell activation. B cell activation and antibody production, isotype switching.  6. Immunological tolerance. Mechanisms of central and peripheral tolerance.  7. Effector mechanisms of humoral and cellular immunity.  8. The immune system in pathological situations. Allergy, autoimmunity.  9. Cancer immunity.  Laboratory exercises  1. Two colour FACS analysis of PBMCs  2. Direct and indirect ELISA  3. Western blot assay  Analysis of the results |

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

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| **DELIVERY** *Face-to-face, Distance learning, etc.* | Face-to-face in a Lecture Theatre. |
| **USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY** *Use of ICT in teaching, laboratory education, communication with students* | Use of ICT in laboratory education.  Educational support through the electronic platform e-course. |
| **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*** | ***Semester workload*** | | Lectures | 39 | | Laboratory practicals | 18 | | Study hours | 95 | | Laboratory reports | 10 | | Examination (theory + laboratory) | 5 | | Course total | 167 ώρες | |
| **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.* | Student performance is evaluated by two written examinations.   * Theory examination comprises three parts a) small assay, b) problem solving questions and c) sort questions of multiple choice type. Adds 75% on the final note. * Lab examination comprises problem solving questions and results analysis of ELISA, WB and FACS. Adds 25% on the final note. * Laboratory reports may add an extra bonus of up to 1,6 on the final note. |

1. **ATTACHED BIBLIOGRAPHY**

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| *- Suggested bibliography:*   * Cellular and Molecular Immunology. A.K. Abbas, A.H. Lichtman and S. Pillai, 8th edition, Saunders, Philadelphia, USA 2015   ISBN 978-0-323-31614-9   * Βασική Ανοσολογία (Λειτουργίες & Δυσλειτουργίες του Ανοσοποιητικού Συστήματος), Abul K. Abbas, Ιατρικές Εκδόσεις Πασχαλίδη, 2004 Αθήνα,   ISBN 960-399-217-8   * Βασική Ανοσολογία (Λειτουργίες & Δυσλειτουργίες του Ανοσοποιητικού Συστήματος), Abul K. Abbas, Ιατρικές Εκδόσεις Πασχαλίδη, 2004 Αθήνα,   ISBN 960-399-217-8 |