

## MICROBIOLOGY I

**Study Programme: MIMV    Curricular Year: 2<sup>nd</sup>    Semester: 3<sup>rd</sup>    Compulsory    Credits: 5.0 ECTS**

**Lecturer(s):** Luis Tavares, Ana Duarte, Manuela Oliveira, Ricardo Bexiga

### 1. Contact hours:

Lectures 28    Practicals 28    Total 56

### 2. Objectives:

Students must acquire the concept and recognize the different types of microorganisms, understand and discriminate aspects of bacterial and fungal biology, evaluate the relevance of indigenous microbiota and recognize the importance of bacteria and fungi in pathological and technological processes. Students must develop competencies of manipulating laboratory instruments and substrates or samples bearing bacteria and fungi, be able to plan and perform bacteriological and micological analysis, have the basic knowledge to critically read scientific articles and write technical reports.

### 3. Programme:

Theoretical: Introduction to microbiology, ultrastructure of prokaryote cell, bacterial ecology, mechanics of pathogenicity, non-specific defences against microbial aggression, relevant bacterial genus in Veterinary Medicine (normal microbiota, genus and species with medical, environmental and technological interest); fungi ecology, relevant fungus in Veterinary Medicine (genus and species with medical, environmental and technological interest).

Practical – Microbial ubiquity – control of microorganisms physical and chemical agents, simple and differential stains. Clinical bacteriology – based on “clinical cases” of infection, culture, isolation, identification and antibiotic testing of aerobic and anaerobic bacteria. Food and environmental bacteriology – based on “real cases”, bacterial quantification techniques, identification and quantification of specific bacteria. Clinical, food and environmental mycology – based on “real cases”, general and specific culturing techniques for fungus, use of identification keys.

### 4. Bibliography:

Burnett, J.H. (1976). *Fundamentals of Mycology*. 2<sup>nd</sup> Edition. Edward Arnold, London, U.K.

Kreger van Rigg, N.J.W. (1984). *The Yeasts. A taxonomic study*. 3<sup>rd</sup> Edition Elsevier, Amsterdam, The Netherlands.

Quinn, P.J., Carter, M.E., Markey, B.K. & Carter, G.R. (1994). *Clinical Veterinary Microbiology*. Wolfe Publishing.

Quinn, P.J., Markey, B.K., Carter, M.E., Donnelly, W.J. & Leonard, F.C. (2002). *Veterinary Microbiology & Microbial Diseases*. Blackwell Science.

Willey, J., Sherwood, L. & Woolverton, C. (2011). *Prescott's Microbiology*. 8<sup>th</sup> Edition, McGraw-Hill.

### 5. Assessment:

Theoretical – Written exam. Practical – Continuous evaluation of practical work and final written exam.