



<b>Study program:</b> Doctoral Academic Studies in Biomedical Sciences
<b>Name of the subject:</b> CURRENT ISSUES IN MICROBIOLOGY AND IMMUNOLOGY
<b>Teacher(s):</b> Ivana B. Hrnjaković Cvjetković, Gordana M. Smieško, Vera P. Gusman, Deana D. Medić
<b>Status of the subject:</b> elective
<b>Number of ECTS points:</b> 20
<b>Condition:</b> -
<b>Goal of the subject:</b> To achieve a comprehensive view of current facts in the field being studied in order to connect the and apply them in theory and practice.
<b>Outcome of the subject</b> Theoretical preparation for diagnosis and differential diagnosis. Preparation for work in practice, selection of appropriate methods and their interpretation.
<b>Content of the subject</b> <i>Theoretical lectures</i> <ol style="list-style-type: none"> <li>1. New knowledge regarding bacterial genetics</li> <li>2. Mechanisms for determining bacterial resistance to antibiotics</li> <li>3. Resistance genes and their spread among bacteria.</li> <li>4. New causative agents of bacterial infections and old causative agents with new properties</li> <li>5. Normal flora of the human body and opportunistic infections</li> <li>6. New knowledge about the causes of tuberculosis</li> <li>7. New causes of parasitic and fungal diseases</li> <li>8. Infection. The role of immunocytokines in severe infections. Diagnostic and prognostic significance of proving cytokines-new findings.</li> <li>9. Significance of cytokines and adhesive costimulatory effects in immunological and immunopathological events</li> <li>10. New attitudes about hypersensitivity reactions. The role of cytokines in these reactions</li> <li>11. Current events related to tissue and organ transplants. GVH disease. Human HLA system (importance of HLA genes and antigens in immune response control, tissue coordination and other immune responses)</li> <li>12. Immunomodulations for the purpose of treatment</li> </ol> <i>Practical lectures</i> <ol style="list-style-type: none"> <li>1. Laboratory diagnosis of respiratory bacterial infection</li> <li>2. Laboratory diagnosis of bacterial infections of the urinary tract and their therapy</li> <li>3. Laboratory diagnosis of bacterial infections of the gastrointestinal tract</li> <li>4. Current events in the diagnosis and therapy of sexually transmitted diseases</li> <li>5. Laboratory diagnosis of pyogenic bacterial infections and sepsis. Interpretation of results.</li> <li>6. Testing of bacterial susceptibility to antimicrobial drugs (new standards)</li> <li>7. Laboratory diagnosis of parasitic and fungal infections</li> <li>8. Application of serological diagnostics (possibilities of obtaining false-positive and false-negative results, overcoming existing problems and interpretations)</li> <li>9. Molecular diagnostic methods and their application in rapid and early diagnosis</li> <li>10. Application of electron and immunoelectron microscopy in the diagnosis of viral infections. Immunological tests and their application</li> <li>11. Virus isolation and identification. Application of isolation method in rapid diagnostics. Interpretation of results</li> <li>12. Influence of the type of patient material and sampling time on the choice of a certain diagnostic method and interpretation of results</li> <li>13. Effect of physical and chemical agents on viruses. Principles of rational antiviral therapy (new understandings)</li> <li>14. Virus genetics. Possibility of recombination, incorporation of the virus into the cell genome, rearrangement of cell genes. Consequences of viral variability (variability)</li> <li>15. Viruses in the environment</li> </ol>
<b>Recommended literature</b> <i>Required</i>

1. Ter Meulen V, Mahy BWJ. Topley&Wilson's Microbiology and microbial infections: Virology, Hodder Arnold UK, 2009.

**Number of active classis**

**Theory: 60**

**Practice: 45**

**Methods of delivering lectures:** Lectures, exercises, seminars

**Evaluation of knowledge (maximum number of points 100)**

activities during the lecture: 20

seminars: 20

SRW: 20

written exam: 10

oral exam: 30