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| Module name | **Medical microbiology - an extensive course** |
| Module code | B-MI.237 |
| ISCED code | 0511: Biology |
| Study cycle | I and II° |
| Semester | Summer semester |
| Responsible for this module | prof. dr hab. Teresa Urbanik-Sypniewska  e. mail: teresa.urbanik-sypniewska@poczta.umcs.lublin.pl,  tel. (48) 81-537-50-33 |
| Language of instruction | English |
| Website | - |
| Prerequisites | Biology course and/or General Microbiology course |
| ECTS | 8 |
| ECTS points hour equivalents | Contact hours (work with an academic teacher)  Lecture – 30 hours; Laboratory – 60 hours.  Total number of hours with an academic teacher 120  Number of ECTS points with an academic teacher 4 Non-contact hours (students' own work) 120 Total number of non-contact hours 120  Number of ECTS points for non-contact hours 4  **Total number of ECTS points for the module = 8** |
| Educational outcomes verification methods | The written test exam |
| Description | The module covers the knowledge in the area of bacteria that cause human diseases. Basic information on human microbiome and medically important pathogens: Gram-positive cocci (*Staphylococcus*, *Streptococcus*, *Enterococcus)*, Gram-positive spore-forming (*Bacillus*, *Clostridium),* anaerobic infections (*Bacteroides*, *Porphyromonas*, *Prevotella*, *Fusobacterium),* Gram-negative bacilli (*Enterobacteriaceae* -*Yersinia*, *Salmonella*, *Shigella*, *Escherichia*, coliforms, *Klebsiella*, *Proteus*), Gram-negative bacilli oxidase positive (*Pseudomonas*, *Burkholderia)*, Gram-negative curved bacilli (*Vibrio*, *Campylobacter*, *Helicobacter)*, Gram-negative coccobacilli (*Brucella*, *Bordetella*), fastidious Gram-negative bacteria (*Neisseria*, *Haemophilus)*, HACEK group infections, *Legionella*, *Coxiella*, animal-associated bacteria (*Erysipelotrix, Francisella, Pasteurella, Mannheimia),* spirochetes (*Treponema*, *Leptospira*, *Borrelia*), Gram-positive bacilli (*Listeria*, *Corynebacteria*, *Mycobacteria*), obligate intracellular bacteria (*Rickettsia*, *Chlamydia),* cell wall-less bacteria (*Mycoplasma, Ureaplasma).* Identification of bacterial pathogens using molecular biology and microbiological techniques, examination of infections of the human body systems, ways and mechanisms of infection, prevention, and treatment. Basic aspects of antimicrobial chemotherapy. |
| Reading list | 1. Harrison’s Infectious Diseases. by Dennis L. Kasper, Anthony S. Fauci, 2010. 2. Microbiology with diseases by body system. 4th ed. By R.W. Bauman, 3. Medical Microbiology by F.H. Kayzer, K.A. Bienz, J. Eckert, R.M. Zinkernagel 4. Practical Manual of Medical Microbiology by C.P. Prince |
| Educational outcomes | **KNOWLEDGE**  The course provides a basic theoretical and technical study of the structure, molecular biology, pathogenesis, epidemiology, and laboratory identification of the bacteria that cause human diseases. The student can convert the acquired theoretical background knowledge into actual practice in the course of experiments.  **SKILLS**  -To recognize the basic etiological factors of human bacterial infective diseases.  -differentiation of bacterial pathogens from harmless bacteria that colonize humans  - acquire the practical knowledge used in medical microbiology  **ATTITUDES**   * develop skills in critical review of microbiology literature helpful in solving of diagnostics problems of bacterial diseases in humans |
| Practice | - |

**Information about classes in the cycle**

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| Website | - |
| Educational outcomes verification methods | Assesment of labs |
| Comments |  |
| Reading list | 1. Harrison’s Infectious Diseases. by Dennis L. Kasper, Anthony S. Fauci, 2010. 2. Microbiology with diseases by body system. 4th ed. By R.W. Bauman, 3. Medical Microbiology by F.H. Kayzer, K.A. Bienz, J. Eckert, R.M. Zinkernagel |
| Educational outcomes | **KNOWLEDGE**  Isolation and culturing of bacteria. Microscopic examination of bacterial morphology by different staining methods. Examination and identification of selected groups of pathogenic bacteria by using laboratory detection methods: molecular, morphological, immunological and cultural. Examination of factors affecting disease spread. Biochemical and serological tests for identification of bacteria.  Evaluation of the efficacy of antimicrobial agents; determination of MIC and MBC. Performance of suitable PCR methods for virulence factors detection.  **SKILLS**  -Theory and practice, with diagnostics of the bacterial etiological agents of infectious diseases  -up-to-date knowledge of infectious diseases  - acquire the practical knowledge and skills used in medical microbiology and safe work practices in microbiology  -  capability to work as a scientist in a research or diagnostic microbiology laboratory  **ATTITUDES**  Applying the obtained knowledge for diagnostics and antimicrobial proceeding of bacteria that cause disease in humans |
| A list of topics | 1. Introduction to Medical Microbiology 2. Laboratory safety principles 3. Principles of microbiological examination 4. Specimen selection and processing 5. Microbial identification techniques 6. Antibacterial drugs and responsible use of antibiotics in public health |
| Teaching methods | Practical teaching, presentation, discussion |
| Assessment methods | Assesment of praxis and written or oral tests |