

## Information sheet for the course Laboratory methods in microbiology and biology of environment

<b>University:</b> <i>Alexander Dubček University of Trenčín</i>	
<b>Faculty:</b> <i>Faculty of Health Care</i>	
<b>Course unit code:</b> <i>LMMikBŽP/e</i>	<b>Course unit title:</b> <i>Laboratory methods in microbiology and biology of environment</i>
<b>Type of course unit:</b> <i>compulsory</i>	
<b>Planned types, learning activities and teaching methods:</b> <i>Lecture: 1 hour weekly/13 hours per semester of study; full-time</i> <i>Seminar: 1 hour weekly/13 hours per semester of study; full-time</i>	
<b>Number of credits:</b> 2	
<b>Recommended semester:</b> <i>6<sup>th</sup> semester in the 3<sup>rd</sup> year (part-time)</i>	
<b>Degree of study:</b> <i>I (bachelor)</i>	
<b>Course prerequisites:</b> <i>none</i>	
<b>Assessment methods:</b> <i>To obtain credits for the course, a student must pass an oral or written examination (50 points).</i> <i>- Active participation at student practical exercises (0-5 points).</i> <i>- Work out protocols from practical exercises (0-5 points).</i> <i>- Pass the written test from the problem presented during the lectures (0-80 points).</i> <i>To obtain A, a student must score at least 70 points, to obtain B, a student must score at least 60 points, to obtain C, a student must obtain at least 50 points, to obtain D, a student must obtain at least 40 points, and finally to obtain E, a students must to obtain at least 30 points.</i>	
<b>Learning outcomes of the course unit:</b> <i>After the completion of the course a student acquires general overview in the field of investigation of microbiological and biological indicators in environmental samples. A student will learn practical processing of samples according to their nature and objective examination; assessment of samples and their comparison to the set limits.</i>	
<b>Course contents:</b> <b>Lectures:</b> <ol style="list-style-type: none"> <li><i>1. The concept of the Ministry of Environment and principles of occupational safety and health in microbiology laboratory.</i></li> <li><i>2. Culture media - distribution, preparation, application.</i></li> <li><i>3. Testing methods in microbiology (microscopy, culture, biochemical).</i></li> <li><i>4. Microbiological food analysis, objectives, legislation.</i></li> <li><i>5. Qualitative and quantitative microbiological parameters in food.</i></li> <li><i>6. Microbiological analysis of drinking water.</i></li> <li><i>7. Testing procedures in water samples.</i></li> <li><i>8. Microbiological analysis of surface water.</i></li> <li><i>9. The processing of dross from the environment.</i></li> <li><i>10. Biological inspection of sterilizer and autoclave efficiency – objections and procedures.</i></li> <li><i>11. Testing procedures in biology of living environment.</i></li> <li><i>12. Biological analysis of drinking water.</i></li> <li><i>13. Biological analysis of surface water.</i></li> </ol> <b>Practical exercises:</b> <ol style="list-style-type: none"> <li><i>1. Testing methods in microbiology.</i></li> <li><i>2. Culture Media – vaccination.</i></li> <li><i>3. Preparation of Gram stains, preparation and assessment of preparative.</i></li> <li><i>4. Practical testing of food samples for qualitative and quantitative indicators, assessment</i></li> </ol>	

and calculation.

5. *Practical microbiology testing of drinking water, sample processing, identification of bacterial strains.*
6. *Biochemical identification of bacterial strains.*
7. *Microbiological sample testing of surface water.*
8. *Microbiological testing of dross from the environment (healthcare facilities, food service).*
9. *Biological analysis of drinking water, sample processing and assessment.*
10. *Biological analysis of surface water, sample processing and assessment.*
11. *Processing and assessment of biological samples to check the effectiveness of sterilizers and autoclaves.*

**Recommended of required reading:**

1. *VOTAVA, M. 1999, Kultivační pŕdy v lĕkařské mikrobiologii. Brno:Hortus.1999. ISBN 80-238-5058-X*
2. *SCHINDLER, J. 2010: Mikrobiologie pro studenty zdravotnických oborů. 1. vydanie Praha: Grada Publishing a.s. 2010. ISBN 978-80-247-3170-4*
3. *BEDNÁŘ, M. a kol.: Lĕkařská mikrobiologie . 1. vydanie. Marvil s.r.o.1999*
4. *GÖRNER, F., VALÍK, L. : Aplikovaná mikrobiológia požívatin. 1.vydanie. Malé Centrum Bratislava 2004. ISBN 80-967064-9-7*
5. *STN EN 7218 Všeobecné požiadavky a pokyny na mikrobiologické skúšanie. SÚTN Január 2008*
6. *Vyhláška MZ SR 309/2012 o požiadavkách na vodu určenú na kúpanie. Zbierka zákonov č.309/2012, čiastka 76*
7. *Nariadenie vlády SR 496/2010 , ktorým sa dopĺňa NV SR č. 354/2006 Z. .z., ktorým sa ustanovujú požiadavky na vodu určenú na ľudskú spotrebu a kontrolu kvality vody určenej na ľudskú spotrebu. Zbierka zákonov č. 354/2006, čiastka 124 a Zbierka zákonov č. 496/2010, čiastka 188*

**Language:** Slovak

**Remarks:**

**Evaluation history:**

Number of evaluated students: 59

a	b	c	d	e	f
57.63%	25.42%	15.25%	1.69%	0.00%	0.00%

**Lectures:**

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