

<b>GENERAL INFORMATION</b>		
Course name	<b>Basic Medical Laboratory Diagnostics 1</b>	
Course director	<b>Prof. Ljubica Glavaš-Obrovac, PhD</b>	
Assistants	Asst. Prof. Sanja Mandić, PhD Asst. Prof. Stana Tokić, PhD	
Study program	<b>Integrated undergraduate and graduate university study program Medical Studies in German</b>	
Course status	Elective	
Year of study, semester	3 <sup>rd</sup> year, 5 <sup>th</sup> semester	
Credits allocated and form of instruction	ECTS student workload	<b>1</b>
	Number of teaching hours (L+S+E)	<b>15 (5+5+5)</b>
<b>COURSE DESCRIPTION</b>		
<b>Course objectives</b>		
Familiarize students with the principles of the operation of a biomedical laboratory and the use of modern biochemical methods in diagnostics and research		
<b>Course requirements</b>		
There are no specific requirements for this course except those defined in the study program curriculum.		
<b>Learning outcomes relevant to the study program</b>		
<b>1.1., 1.2., 2.1., 3.4</b>		
<b>Expected learning outcomes (5-10 learning outcomes)</b>		
Upon completing the course, the student will be able to:		
<ol style="list-style-type: none"> <li>1. Understand the principles of determination and analysis by using spectroscopic, chromatographic, immunochemical, radiochemical and electrophoretic methods</li> <li>2. Use appropriate analytical method for the biological sample analysis</li> <li>3. Interpret the obtained analytical result</li> </ol>		
<b>Course content</b>		
Sources and preparation of biological materials. Sedimentation techniques: centrifuging and deposition. Spectroscopic methods and their use in biological sample analysis. Measurements based on the turbidity of colloidal solutions (nephelometry and turbidimetry), refractometry and polarimetry. Introduction to electrochemical methods. Radiochemical methods. Use of radioactive elements in diagnostics and therapy. Gas and liquid chromatography and their use in biological sample analysis. Electrophoresis and the use of electrophoretic methods. Immunochemical methods and their use in quantitative and qualitative analysis of biological materials. Flow cytometry, principle and examples of its use in laboratory diagnostics. Use of the microscope as an analytical tool for diagnostic and research purposes.		
<b>Form of instruction</b>	<input checked="" type="checkbox"/> lectures	<input type="checkbox"/> individual assignments <input type="checkbox"/> multimedia and internet <input type="checkbox"/> laboratory <input type="checkbox"/> mentoring activities <input type="checkbox"/> other
	<input checked="" type="checkbox"/> seminars and workshops	
	<input checked="" type="checkbox"/> exercises	

	<input type="checkbox"/> distance learning <input type="checkbox"/> field course	
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### Student obligations

Come to class prepared by studying the recommended literature for each unit and actively participate in all forms of instruction. The student must participate in at least 70% of classes to pass the course.

### Monitoring student learning

Attendance	x	Active participation	x	Seminar paper		Experimental work	x
Written exam	x	Oral exam		Essay		Research	
Project		Continuous assessment		Paper		Practical work	x
Portfolio							

### Assessment and evaluation of students during class and on the final exam

Students' performance will be evaluated during class and on the final exam. Students are evaluated numerically and descriptively (insufficient (1), sufficient (2), good (3), very good (4), excellent (5)). During classes, a student can earn a maximum of 100 points. Students can earn a maximum of 20 points during classes through different types of activities. On the final exam, students can earn a maximum of 80 points. The final grade represents the sum of the points earned during classes and on the final exam.

### Mandatory reading

1. M. Holtzhauer. Biochemische Labormethoden (Springer Labormanuale), 3. Auflage, 2013

### Additional reading

1. Jeremy M. Berg, John L. Tymoczko, Gregory J. Gatto jr. Stryer Biochemie, 9. Auflage, Springer Verlag, 2017

### The number of copies of mandatory reading in proportion to the number of students currently taking this course

<i>Title</i>	<i>Number of copies</i>	<i>Number of students</i>
M. Holtzhauer. Biochemische Labormethoden (Springer Labormanuale), 3. Auflage, 2013	A purchased license for online textbooks shall be used <a href="https://bfdproxy48.bfd-online.de/login.htm?back=http%3a%2f%2fpartner.bfd-online.info.bfdproxy48.bfd-online.de%2fameos%2fbfdAboGateway%3fabold%3d264117">https://bfdproxy48.bfd-online.de/login.htm?back=http%3a%2f%2fpartner.bfd-online.info.bfdproxy48.bfd-online.de%2fameos%2fbfdAboGateway%3fabold%3d264117</a>	
	Access will be granted to all students enrolled in the study program	

### Quality monitoring methods ensuring the acquisition of knowledge upon completion, skills and competences

The quality of course performance is monitored through an anonymous student survey on the quality of the organization and conduction of classes, the course content and the work of professors. The usefulness of the lectures from the students' perspective, the curriculum content, the professor preparedness, the clarity of the presentation, the amount of new content and the quality of the presentation are evaluated. The curriculum and its execution are administratively compared. The participation of students in lectures and exercises, as well as the excuses for missing classes, are controlled and analyzed.