

<b>GENERAL INFORMATION</b>		
Course name	<b>Nutrigenomics</b>	
Course director	<b>Asst. Prof. Teuta Opačak-Bernardi, PhD</b>	
Assistants	Prof. Ljubica Glavaš-Obrovac, PhD Asst. Prof. Katarina Mišković-Špoljarić, PhD Asst. Prof. Barbara Viljetić, PhD Asst. Prof. Stana Tokić, PhD Asst. Prof. Marijana Jukić, 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+10+0)</b>
<b>COURSE DESCRIPTION</b>		
<b>Course objectives</b>		
Familiarize students with how food ingredients affect gene expression directly or indirectly and subsequently alter metabolic pathways. Familiarize students with the significance of certain polymorphisms and their role in the susceptibility of some genotypes to changes in diet and cell homeostasis.		
<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., 2.1., 3.4.</b>		
<b>Expected learning outcomes (5-10 learning outcomes)</b>		
After attending the course, the student will be able to: 1. Understand the definition and scope of nutrigenomics 2. Understand micronutrients and their importance 3. Understand different ways of regulating gene expression 4. Understand how certain nutrients can permanently change gene expression 5. Understand the importance of polymorphisms in dietary adjustments 6. Understand how dietary adjustments can contribute to improving the general condition of the organism		
<b>Course content</b>		
What is nutrigenomics; The role of micronutrients and macronutrients in metabolism; Tools for analyzing genome and their application in nutrigenomics; Polymorphism in genes and sensitivity of genotypes to diet; Transcription factors and their role in interactions between food and genes; Diet and genes associated with disease occurrence. Functional food and diet adjustment in sensitive genotypes; Role of nutraceuticals in health improvement and their mechanism of action; Advantages and questionable effects of nutraceuticals.		
<b>Form of instruction</b>	<input checked="" type="checkbox"/> lectures <input checked="" type="checkbox"/> seminars and workshops <input type="checkbox"/> exercises <input type="checkbox"/> distance learning <input type="checkbox"/> field course	<input type="checkbox"/> individual assignments <input type="checkbox"/> multimedia and internet <input type="checkbox"/> laboratory <input type="checkbox"/> mentoring activities <input type="checkbox"/> other
<b>Student obligations</b>		

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. Students will be given their seminar paper topic which they will write in the form of an essay.

**Monitoring student learning**

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

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

Active monitoring of students during classes and preparation of seminar papers. 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. Alensias, D. Nutrigenomik - Ernährungsberatung nach Gen-Analyse, Fastbook Publishing, 2010

**Additional reading**

1. L. R. Ferguson (Ed). Nutrigenomics and Nutrigenetics in Functional Foods and Personalized Nutrition, 1st Ed, 2013  
 2. S.S. Gropper, J.L. Smith, J.L. Groff: Advanced Nutrition and Human Metabolism, 4th Ed, 2005;

**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>
1. Alensias, D. Nutrigenomik - Ernährungsberatung nach Gen-Analyse, Fastbook Publishing, 2010	20	60

**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.