GENERAL INFORMATION		
Course name	**Nutritional Epidemiology**	
Course director	**Prof. Maja Miškulin, MD, PhD**	
Assistants	Terezija Berlančić, MD Nika Pavlović, PhD	
Study program	**Integrated undergraduate and graduate university study program Medical Studies in German**	
Course status	Elective	
Year of study, semester	3rd year, 6th semester	
Credits allocated and form of instruction	ECTS student workload	**1**
	Number of teaching hours (L+S+E)	**15** (10+5+0)

COURSE DESCRIPTION

Course objectives

Familiarize students with the definition and main tasks of nutritional epidemiology and its historic development. The acquisition of knowledge of epidemiological study components and basic postulates of observable, experimental, descriptive and analytic epidemiology. The acquisition of knowledge of causal links, sample types and sampling. The acquisition of knowledge of questionnaires as data collection instruments. The acquisition of knowledge of absolute and relative numbers (proportion, rate ratio) used in epidemiology. The acquisition of knowledge of epidemiological measures (frequency measures, measures of association, measures of potential impact). The acquisition of knowledge of basic postulates and cohort study characteristics. The acquisition of knowledge of basic postulates and characteristics of case-control studies. The acquisition of knowledge of basic postulates and cross–sectional study characteristics. The acquisition of knowledge of the relationship between diet and health. The acquisition of knowledge of key nutritional factors and their impacts on population health. The acquisition of knowledge of dietary assessment methods (24-hour recall, dietary records, meal frequency, dietary history, duplicate meals, recall of remote diet). Familiarizing students with the use of food frequency questionnaires. The acquisition of knowledge of possible supplementary sources of nutritional information. The acquisition of knowledge of biochemical indicators of dietary intake and their use in the evaluation of other dietary assessment methods. The acquisition of knowledge of anthropometric measures as indicators of dietary intake.

Course requirements

There are no specific requirements for this course except those defined in the study program curriculum.

Learning outcomes relevant to the study program

1.1, 1.2, 2.2, 2.3, 3.1, 3.4, 4.2

Expected learning outcomes *(5-10 learning outcomes)*

Upon successful completion of this course, the student will be able to:

1. Show main characteristics of nutritional epidemiology.
2. Interpret basic postulates of observable, experimental, descriptive and analytical epidemiology.
3. Differentiate between specific types of analytical studies and explain their characteristics.
4. Create a survey questionnaire and conduct a survey.
5. Compare data sources that can be used in dietary assessment.
6. Explain the characteristics of different methods of dietary assessment.

7. Develop and carry out own research in the field of nutritional epidemiology.

Course content

Definition and tasks of nutritional epidemiology. Development of nutritional epidemiology. Basis for study and application of epidemiological methods. Epidemiological study components. Observable epidemiology. Experimental epidemiology. Descriptive epidemiology. Analytical epidemiology. Causal links. Risk factor. Cause. Causal criteria. Sample types and sampling. Total population. Target population. Representativeness. Probability sampling. Convenience sampling. Simple random sampling. Stratified random sampling. Subset sampling or cluster sampling. Systematic sampling. Questionnaire – data collection instrument. Standard questionaire. Steps in the development of a new questionnaire. Questionnaire that the subjects fill themselves. Questionnaire in which the subjects answer questions asked by researchers. Features of a good questionnaire. Epidemiological measures and the measurement of occurrences in the population. Absolute numbers. Relative numbers – proportion, ratio, rate. Frequency measures – morbidity measures, mortality measures. Measures of association – relative risk, attributable risk, odds ratio, prevalence ratio. Measures of potential impact – population attributable fraction, population preventable fraction. Descriptive epidemiology. Definition and tasks of descriptive epidemiology. Person. Place. Time. Cohort study. Cohort in epidemiology. Course of cohort study. Closed cohort. Open cohort. Retrospective cohort study. Prospective cohort study. Course of prospective and retrospective cohort study. Disease frequency measures (cumulative incidence, incidence rate) and measures of association (relative risk, attributable risk) in a cohort study. Time determination of cohort study. Scope of cohort study. Advantages and disadvantages of cohort study. Longitudinal studies. Nested case-control study. Case-control study. Course of case-control study. Selection of cases. Selection of controls. Methods of minimizing the impact of confounders – matching and restriction. Exposure data sources. Measures of association in case-control study – odds ratio – definition and interpretation. Time determination of case-control studies. Advantages and disadvantages of case-control studies. Cross-sectional study. Current prevalence. Periodic prevalence. Course of cross-sectional study. Prevalence ratio (PR). Prevalence odds ratio (POR). Interpretation of PR and POR. Time determination of cross-sectional study. Data collection in cross-sectional studies. Scope of cross-sectional study. Advantages and disadvantages of cross-sectional study. Diet and health. Health impacts of different nutritional factors. Dietary assessment methods. 24-hour recall. Dietary records. Meal frequency and food frequency questionnaire. Dietary history method. Meal duplicates method. Recall of remote diet. Supplementary sources of nutritional information. Biochemical indicators of dietary intake and their use in the evaluation of other dietary assessment methods. Anthropometric measures as indicators of dietary intake.

Form of instruction	☒lectures ☒seminars and workshops ☐exercises ☐distance learning ☐field course	☐individual assignments ☐multimedia and internet ☐laboratory ☐mentoring activities ☐other

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		Active participation		Seminar paper	x	Experimental work	
Written exam		Oral exam	x	Essay		Research	
Project	x	Continuous assessment		Paper		Practical work	
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 60 points during classes through different types of activities. On the final exam, students can earn a maximum of 40 points. The final grade represents the sum of the points earned during classes and on the final exam.

Mandatory reading

1. Kreienbrock L. Epidemiologische Methoden, Spektrum Akademischer Verlag; 5 edition, Deutschland, 2012.

Additional reading

1. Coulston A. M., Boushey C.J. Nutrition in the prevention and treatment of disease, second edition (selected chapters). Elsevier Academic Press, San Diego, 2008.

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

Title	*Number of copies*	*Number of students*
Kreienbrock L. Epidemiologische Methoden, Spektrum Akademischer Verlag; 5 edition, Deutschland, 2012.	A purchased license for online textbooks shall be used https://bfdproxy48.bfd-online.de/login.htm?back=http%3a%2f%2fpartner.bfd-online.info.bfdproxy48.bfd-online.de%2fameos%2fbfdAboGateway%3faboId%3d264117 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.