Name of the course	**Epidemiology with Clinical Rotation**			***Code***	MSE605
Type of study program:	Integrated university study program, Medicine			***Year of study:***	6
Credits (ECTS):	3.0	***Semester:***	XI	***Number of hours per semester (l+s+e)***	60 (20+20+20)
Status of the course:	obligatory	***Preconditions:***	According to the Rulebook	***Comparative conditions:***	/
Access to course:	Sixth year students			***Hours of instructions:***	According to schedule

Course teacher:	Professor Maja Miškulin, MD, PhD
Consultations:	As agreed with students
E-mail address and phone number:	-
Associate teachers	Kristina Bevanda, MD; Rozalija Nedić, MD
Consultations:	As agreed with students
E-mail address and phone number:	-

The aims of the course:	The aims of this course are: • To enable students to understand the main tasks of epidemiology and to familiarize them with its historical development and basic characteristics • To acquire knowledge about the components of epidemiological research and the basic principles of observational, experimental, descriptive and analytical epidemiology • To familiarize students with the epidemiological characteristics and possibilities of prevention of the most important groups of infectious and chronic non-infectious diseases.
Learning outcomes (general and specific competences):	After the lectures, seminars, exercises, independent assignments, self-study and the passed exam students will be able: • To evaluate the basic principles of observational, experimental, descriptive and analytical epidemiology. • To distinguish certain types of analytical epidemiological research and to argue their advantages and disadvantages. • To compare possible methods of systematic epidemiological monitoring of the health status of the population. • To critically assess the epidemiological characteristics of the most important groups of infectious and chronic non-communicable diseases and the possibilities of their prevention. • To create a questionnaire for their own epidemiological research. • To design their own small epidemiological research and to interpret its results.
Course content (Syllabus):	<u>Lectures:</u> (L1) Historical development of epidemiology. (L2) Definition and tasks of epidemiology. (L3) Epidemiological measures and measuring events in a population. (L4) Indicators of the health status of the population. (L5) Basics of research and application of epidemiological methods. (L6) Descriptive epidemiology. (L7) Cohort study. (L8) Case-control study. (L9) Cross-sectional study. (L10) Diagnostic tests and screening tests. (L11) Experimental studies. (L12) Causal relationship. (L13) Types of samples and sampling. (L14) Questionnaire - an instrument for collecting data. (L15) Basics of data analysis in epidemiology. (L16) Systematic epidemiological monitoring of the health status of the population.

	(L17) Disease prevention. (L18) The most important branches of epidemiology. (L19) International health. (L20) Ethical principles in epidemiological research. <u>Seminars:</u> (S1) Epidemiology of respiratory diseases. (S2) Epidemiology of diseases transmitted through the digestive system. (S3) Epidemiology of diseases transmitted by contact. (S4) Epidemiology of zoonoses. (S5) Epidemiology of natural focal infections. (S6) Epidemiology of cardiovascular diseases. (S7) Epidemiology of malignant neoplasms. (S8) Epidemiology of mental illnesses and disorders. (S9) Epidemiology of diabetes. (S10) Epidemiology of accidents. <u>Exercises:</u> (E1) Relative numbers in epidemiology (proportion, ratio, rate). (E2) Epidemiological indicators of health status (age distribution of the population, birth rate, mortality rate, natural increase rate, infant mortality, perinatal mortality, proportional mortality, specific mortality, lethality). (E3) Frequency measures in epidemiological research (incidence, prevalence). (E4) Measures of association in cohort studies (relative risk, attributable risk) and their interpretation. (E5) Measures of association in case-control studies (odds ratio) and its interpretation. (E6) Measures of association in cross-sectional studies (prevalence ratio, prevalence odds ratio) and their interpretation. (E7) Describing and presenting research data (data distributions, histograms, scatter plots, pie charts, measures of central value, dispersion). (E8) Hypothesis testing, statistical tests and p-value. (E9) Test sensitivity. Test specificity. Positive predictive value of a diagnostic test. Negative predictive value of a diagnostic test. (E10) Introduction to the organization and work of the epidemiological service in Bosnia and Herzegovina (fieldwork of epidemiologists, vaccination station, work of epidemiologists in emergency situations).

Format of instruction (mark in bold)	**Lectures**	**Exercises**	**Seminars**	**Independent assignments – small project assignment**
	Consultations	Work with mentor	Field work	Other
	Notes: ***Small project assignment – independent assignment:*** Each student will have to design a small survey on a topic of their own choosing and a questionnaire to collect the desired data. Students must submit a description of the planned research and the designed survey questionnaire to the course teacher no later than one week before the planned final exam.			
Student responsibilities	Students are obliged to regularly attend and actively participate in all forms of classes. For the successful completion of the seminars and the successful completion of the exercises, prior preparation of the student is required. In the case of being prevented from attending classes, students should have proof of a justified reason.			
Screening student work (mark in bold)	**Class attendance**	**Class participations**	**Seminar**	**Practical training – small project assignment**
	Oral exam	**Written exam**	Continuous assessment	Essay
Detailed evaluation within a *European system of points*				

STUDENTS RESPONSIBILITIES	HOURS	PROPORTIONS OF ECTS CREDITS	PROPORTIONS OF GRADE
Attending classes	60	2	
Seminar	5	0.2	10%
Independent assignment	5	0.3	20%
Written exam	20	0.5	70%
Total	90	3.0	100%

Additional clarifications:
The maximum 100 grade points in this course will be distributed as follows:
70 grade points will be earned by students in the written exam; 10 grade points through the preparation and presentation of a seminar paper in a small group, and 20 grade points through the preparation of an independent small project assignment.

Written Exam
The written exam consists of a total of 30 questions and a student can earn a maximum of 70.0 grade points.
The minimum criterion for obtaining grade points is 60% of correctly answered questions, i.e. a student must achieve a minimum of 60% in the written exam in order to start earning grade points. The points earned in the written exam are converted into grade points according to the criteria listed in Table 1.

Table 1. Evaluation of the written part of the final exam

Percentage of correct answers (%)	Grade points
60,00-64,99	42
65,00-69,99	46
70,00-74,99	50
75,00-79,99	54
80,00-84,99	58
85,00-89,99	62
90,00-94,99	66
95,00-100,00	70

Seminars
During the course, 20 hours of seminars will be held, divided into 10 topics. In preparing for the seminar, students will practice teamwork, with each small group of students being responsible for preparing a specific topic that they will have to discuss and orally present to their colleagues. As a result of preparing the seminar, each student can achieve a maximum of 10 grade points. The criteria for awarding grade points are as follows: 0 points - seminar not completed; 3.0 points - orally presented seminar based exclusively on data from the required literature without interaction with the audience; 6.0 points - orally presented seminar based on data from the required literature that is expanded with data from recently published data in the subject area without interaction with the audience; 10.0 points - orally presented seminar based on data from the required literature that is expanded with data from recently published data in the subject area with interaction with the audience, e.g., repeating what has been learned by answering questions.

Small project assignment – independent assignment
Each student will have to design a small survey on a topic of their choice and a questionnaire to collect the desired data. Students must submit a description of the planned research and the designed survey questionnaire to the course teacher no later than one week before the planned final exam. Following the completion of the project, the student can collect a maximum of 20 grade points. The criteria for gaining grade points in this assessment segment are as follows: 0 points – unprepared project; 5.0 points – designed survey questionnaire with visible existing errors in the questions asked (e.g. questions with abbreviations without their explanation); 10.0 points – defined research question and research context without further elaboration of the research structure and description of respondents and designed survey questionnaire without visible existing errors in the questions asked; 15.0 points – defined research question and research context, elaborated research structure and described respondents and designed survey questionnaire without visible existing errors in the questions asked; 20.0 points – defined research question and research context, elaborated research structure and described respondents, designed survey questionnaire without visible existing errors in the questions asked, conducted pilot study on a limited group of respondents with the aim of assessing the effectiveness of the questionnaire with revision and possible shortening of it according to the results of the pilot study.

Final grade
is the sum of grade points achieved during classes and on the final exam, and is determined based on the absolute distribution according to the Rulebook on studying at the University of Mostar:
A = 91-100% 5 (excellent)
B = 79-90% 4 (very good)
C = 67-78% 3 (good)
D = 55-66% 2 (sufficient)
F = 0-54% 1 (insufficient)

Required literature:	• Celentano DD, Szklo M. Gordis Epidemiology, sixth edition (e-book). Elsevier, Philadelphia, 2019. • Baker C. Epidemiology (e-book). Open Education Initiative, University Libraries at Virginia Tech, Blacksburg, 2023. • Bovbjerg ML. Foundations of Epidemiology (e-book). Oregon State University, Corvallis, OR, 2020.
Optional literature:	• Banatvala N, Bovet P. Noncommunicable diseases. A compendium. Routledge, London and New York, 2023. • Southwick F. Infectious diseases: a clinical short course. 4th edition. McGraw-Hill, 2020. • Bonita R, Beaglehole R, Kjellström. Basic epidemiology 2nd edition (e-book). World Health Organization, Geneva, 2006. • Ferenczi E, Muirhead N. One stop doc – Statistics and Epidemiology. Oxford University Press, New York, 2006. • Materials from lectures, seminars and exercises.
Additional information about the course	Method of monitoring teaching quality: - Student survey - Analysis of teaching quality by students and teachers - Analysis of exam pass rates - Report on the Teaching Quality Office - Self-evaluation and external evaluation (visit of quality control teams)