MED3009 Epidemiology and Preventive Medicine

Course title	Code	Semester	Type of course	Course structure and volume (hours)		ECTS
Epidemiology and Preventive Medicine	MED3009	V	Mandatory	Lecture	13	
				Seminar	14	
				Midterm Exam	1	60	2
				Final Exam	2	
				Indep. Work	30	

Faculty, the educational program and level of education	School of Dental Medicine One cycle (5-year duration) Higher Educational Program "Dentistry"
Staff	Lasha Dolidze – Invited teacher Email: lasha.dolidze@bauinternational.edu.ge Personal one-to-one consultation can be arranged at an agreed upon date and time.
Duration	17 weeks
Prerequisite	No prerequisites
Aim	The overall aim of this course is to introduce students to the uses of epidemiology in clinical medicine and in disease prevention at the individual, family and community level.
Methods of Teaching/Learning	Lecture; Problem Based Learning, Case Based Learning
Assessment System and Criteria	**Attendance - student is obliged to attend 70% of the total number of the learning course** The knowledge of the student is evaluated by 100 point-based evaluation system out of which 20 points are allocated for the current assessment, 20 for each midterm exam and 40 points for the final exam. 1. **Current Assessment (activity) - 40 points, including the following:** ● PBC - 10x2=20 points; ● Presentation -10 points ● Project- 10 points

Problem Based Case (PBC) assessment criteria (10 points):

1.   Ability of problem-solving - 2 points;
2. Ability of team work **- 2 points;**
3. Ability of decision-making - 2 points;
4. Ability of   practical application of the acquired theoretical knowledge - 2 points;
5. Ability of using additional sources - **2** points;

II Project preparation - Presentation (10 points)
1. **Content - 1 point;**
2. Problem outline **- 1 point;**
3. Review of the literature on the issue **-1 point;**
4. Research methods relevance with the research goals **-1 point;**
5. Logical argumentation **-1 point;**
6. Deductions accuracy and correlation with the main text **-1 point;**
7. **Visual and technical quality of the material -1 point;**
8. Reliability of the sources **-1 point;**
9. Accuracy of the cited literature **-1 point;**
10. Relevance of wording and style - **1 point;**

Presentation assessment criteria (10 points)

1. Problem novelty - 2 points;
2. Academic level - 2 points;
3. Review of the available modern material related to the topic -2 points;
4. Visual and technical quality of the material - 2 points;
5. Culture of arguing and listening - 1 point;
6. Correct language and style - 1 point;

2. **Midterm Exams - 20 points;**
The exam is conducted in a test-based form (Multiple Choice Questions - MCQ). The test includes 50 questions and the value of each is 0. 4 point(s) . The highest possible score is 20.

3. **Final Exam - 40 points**

 Final Exam is conducted in a combined way:

- Test-based form (MCQ -50 tests with 0.4 point(s) for each question.

- Oral form (2 topics, each scored at maximum 5 points, and 2 Clinical Cases each scored at maximum 5 points)

Verbal Exam assessment criteria (5 points)
5 points - The answer is comprehensive. Student's thinking ability is clearly visible. The topic is precisely and fully presented. The terminology is duly used. The student masters the material regarded by the program on a proper level. He/she has fully and profoundly learnt main as well as supplementary literature.

4 points - The student answers all questions, but independent thinking ability is not clearly visible. The terminology is correctly used. No major errors can be found. The student masters the material regarded by the program on a proper level. He/she has learnt the main literature.

3 points - The answer is incomplete. The topic is presented on satisfactory level but it lacks the thinking ability and is rather based on memorizing. The terminology is scarcely used. The student masters the material regarded by the program but a few errors can be detected.

2 points - The answer is incomplete. The terminology is incompletely used. The material is partially presented. The student masters the main literature on insufficient level. A few major errors can be detected.

1 point - Student's answer is not complete. The terminology is not used or is used in a wrong way. The

Answer is mainly erroneous. The topic is presented in a fragmented fashion.

0 point - The answer does not correspond to the question or it is not presented at all.

Prerequisite for Final Exam are:

- Prerequisite for Final Exam is the situation when at least 40 % of the current assessment level is achieved.

- 70% of Block Hs should be attended.

The exam is considered being passed by the student if he /she receives **50% or more** out of the highest evaluation for the exam (40x50/100=20 points). When the total evaluation of the student (current evaluation + midterm exams' evaluations + final exam evaluation) is more that 40 but less than 51 points, even though the exam grade threshold is passed, the learning course is considered not being covered and the student is given the right to exam retake during the additional examination period.

If the final evaluation for the Learning Course, after taking the additional exam, (current evaluation + midterm exams evaluation + final exam evaluation) is less than 51%, the learning course is not considered covered and it must be taken again.

In summary, the student is awarded the credit in case he/she accumulates minimum 51% out of 100%.

Positive scores:
- (A) Excellent- 91 or more points;
- (B) Very Good- 81-90 points;
- (C) Good- 71-80 points;
- (D) Satisfactory- 61-70 points;
- (E) Enough- 51-60 points;

Negative scores:
- (FX) Failure - 41-50 points: the student needs more independent work and is granted a single attempt of exam retake;

- (F) Fail - 40 points or less: the student's conducted work is not sufficient and needs to take the course again.

 After the results of final exams are available, students with FX assessment have a right to retake an exam during an additional exam week in the same semester.
 An interval between a final and a corresponding additional exam must be at least 5 days after the results of a final exam become available

The core literature	1. **A systematic review of key issues in public health -**stefania Boccia;Paolo Villari; Springer; 2015 2. **Clinical Epidemiology : The Essentials-**Fletcher, Grant S; Wolter kluwers; 6th.ed. 2021; e-book; 3. **Epidemiology for Biostatistics and Public Health –** Bertram K.C. Chan; Springer; 2016; e-book; 4. **High-Yield: Biostatistics, Epidemiology, & Public Health-**Anthony N. Glaser; Wolter Kluwer; 4th.ed. 2014;
The auxiliary literature	1. **Epidemiology-** Klaus Krickeberg, Van Trong Pham, Thi My Hanh Pham; Springer; 2012; 2. **An EasyGuide to Research Design & SPSS-** Beth M. Schwartz; Sage; 2015; 3. **Epidemiology** – Leon Gordis – fifth edition. 2014; e-book;

Learning Outcomes

NQF*	COURSE LEARNING OUTCOMES	PROG. LO	LECTURE	SEMINAR	TEACHING IN SIMULATION ENVIRONMENT	TEACHING IN CLINICAL ENVIRONMENT	MIDTERM EX.	FINAL EXAM	ASSES. METH.
KNOWLEDGE AND AWARENESS	● knows epidemiology as an important link in healthcare. As well as its role in public health and medicine, allowing the student to develop new, original ideas. Understands ways to solve specific problems ● Knows the definition of the terms used in describing disease transmission and control; ● Knows the modes of transmission and measures for prevention and control of communicable and non-communicable disease; ● Knows the principal sources of epidemiological data;	**10.1 10.2 10.3 10.4 6.3**	X	X					**PBL** **MCQ**

	● Knows the definition, calculation and interpretation of the measures of frequency of diseases and mortality; ● Understands the need and uses of screening tests.								
SKILL	● seeks new, original ways of solving complex problems, including conducting independent research using the latest methods and approaches; ● applies the principles of epidemiology and preventive medicine in public health practice; ● formulates clinical question correctly, find the newest and the best evidence in response to these queries, critically evaluating the credibility of the evidence, using – integrating this evidence with clinical experience, explaining the role of epidemiology and preventive medicine in health and medicine, identifying the key areas where epidemiology is used. ● uses of epidemiological tools to make a community diagnosis of the health situation in order to formulate appropriate intervention measures; ● defines the accuracy and clinical value of diagnostic and screening tests (sensitivity, specificity, & predictive values).	7.2		X				X	**Case studies (PBL) ppt**
RESPONSIBILITY AND AUTONOMY	● manages information, solves the problem and makes a decision ● works independently	**11.1 11.2 11.3 11.4**	X	X				X	**PBL PPT Project**

Learning Course Content

Days №	Topics	Lecture (hs)	SEMINAR
I	Basic epidemiologic concepts and principles Distribution of disease by Time, Place, and Person.	1	
II-III	Epidemiologic data measurements (Incidence, Prevalence, population at risk, cumulative incidence, crude incidence and mortality rates, age-specific and mortality rates, standardized incidence and mortality rates, standardized incidence and mortality ratios, the proportional mortality ratio (PMR), the case-fatality ratio (CER), survival rate and relative survival rate, measuring the burden of disease.	2	2
IV	Descriptive epidemiology (Who, What, Where and When?). Case reports and case series Prevalence surveys Routine data collections Mortality data Morbidity data Sources of summery data Confidentiality. (PBL)	1	1
V	Observational studies (ecological studies, cross-sectional studies, cohort studies, case-control studies) Interventional studies (randomized controlled trials). Systematic review Study inclusion, appraisal and data abstraction Meta analysis	1	1
VI	Ratio measures (relative risk) Rate ratios Risk ratios Prevalence ratios Chance Odds ratios; Causal inference Measuring impact on health (Attributable Risk, Attributable Fraction, Population-Attributable Risk, Population-Attributable Fraction)	1	1
VII-VIII	**Midterm exam**	1	
XIX	Validity and Precision	1	1

	Bias and Confounding Control of confounding (randomization, restriction, matching, stratification, standardization, modeling).		
X	Outbreaks, epidemics, endemics and clusters. Transmission (direct transmission, indirect transmission, airborne transmission). Epidemic prevention; Types of surveillance (passive surveillance, active surveillance, sentinel surveillance). Surveillance in practice. (PBL)	1	1
XI-XII	Introduction to preventive medicine Methods of primary prevention: Health promotion Principles and practice of secondary prevention Methods of tertiary prevention; Disease prevention in public health Strategies for prevention Prevention in practice. (PRESENTATION)	1	2
XIII	Prevention of Chronic Diseases Condition-specific prevention (obesity, type 2 Diabetes Mellitus, Stroke, Cardiovascular disease, Chronic lung disease, Cancer, Oral Health, Dementia, Chronic Pain and Arthritis). Barriers (personal barriers and public barriers) and opportunities (opportunities for chronic disease prevention).	1	1
XIV	Prevention of infectious diseases Overview of infectious disease (burden of disease, obtaining accurate history). Public health priorities (HIV/AIDS, Tuberculosis, and Malaria), diseases transmitted by close contact, Foodborne and Waterborne infections, Vector-borne diseases and Zoonoses. Emerging threats (Antimicrobial Resistance and HealthCare–Associated (Nosocomial) Infections, Emerging Infectious Diseases and Bioweapons).	1	1

XV-XVI	Mental and Behavioral Health
	Mental health/behavioral disorders and suicide (definition, epidemiology, costs).
	Risks and protective factors (Biologic Risk Factors, Psychological Risk Factors, Social Risk Factors, Environmental Risk Factors, Culture/Diversity, Protective Factors).
	
	Prevention and health promotion strategies (Theoretical Framework, Public Policy,
	       Media Campaigns, Screening, Psycho-social Interventions,
	       Medical/Pharmacologic Interventions (PROJECT)
		1	2

XVII	Assessing the validity and reliability of diagnostic and screening tests (sensitivity, specificity, positive and negative predictive values).	1	1
XVI-XXII WEEK	**Final Exam**	2	