

In the name of God

## Course plan form

### Part A:

Education year: 1404-1405	Semester: First Semester	Lesson name: Principles of Epidemiology
Educational department: Community and Family Medicine	Lesson type: Theoretical course	Prerequisite lessons:-
Field: Medicine	Step: Basic Sciences	Day and time of class: 10-12 a.m., Saturdays
Class number: Yas 104	In charge professor: Dr. Ali Khalooei	

### Part B:

✓ General objectives of the lesson:

- Getting to know the definition of epidemiology.
- Getting to know the definition of infection.
- Getting to know the morbidity measurement tools.
- Getting to know the mortality measurement tools.
- Getting to know the types of epidemiological studies.
- Getting to know the definition of screening.
- Getting to know the concept of association and causal relationship
- Getting to know the concept of sensitivity, specificity, positive and negative predictive value
- Getting to know the investigating an epidemic.

**Part C:**

✓ Specific objectives (based on three areas of educational objectives: Cognitive, Emotional, Psychomotor)

Titles(grading)	Specific objectives	Developmental evaluation method		Teaching method (Based on model-small group-Problem Based Learning (PBL)-Team Based Learning (TBL)-speech)		Education al tools	Comprehensiv e assignments	Teaching sources
		percen t	metho d	percen t	metho d			
Fundamentals of Epidemiology	Students should be able to: 1. Explain the definition of epidemiology. 2. State the main objectives of epidemiology. 3. Describe the applications of epidemiology in public health. 4. Describe the applications of epidemiology in medicine.	Class activities, Final Exam		Lecture, Question and Answer		PowerPoin t		Gordis Epidemiolog y Textbook, 2024, 7th Edition

	5. Briefly explain the history of epidemiology.					
Principles of Infectious Diseases Epidemiology (1)	<ol style="list-style-type: none"> <li>1. Explain the definition of infection.</li> <li>2. Explain the spectrum of infection at the cellular and host levels.</li> <li>3. Explain common definitions and terms in infectious diseases.</li> <li>4. Explain the reservoir of disease and the types of reservoirs of infectious diseases.</li> <li>5. Explain the role of the host and its associated factors in the development of infection.</li> <li>6. Explain the definitions of disease frequency levels (sporadic, endemic, epidemic and pandemic).</li> </ol>	: Class activities, Final Exam	: Lecture, Question and Answer			Gordis Epidemiology Textbook, 2024, 7th Edition

Principles of Infectious Diseases Epidemiology (2)	<ol style="list-style-type: none"> <li>1. Explain the chain of infection transmission.</li> <li>2. Explain the definition, importance and factors affecting the incubation period of the disease.</li> <li>3. Explain the different ways of disease transmission.</li> <li>4. Explain the different methods of prevention and control of infectious diseases.</li> </ol>	: Class activities, Final Exam	: Lecture, Question and Answer			Gordis Epidemiology Textbook, 2024, 7th Edition
Measures of Morbidity	<ol style="list-style-type: none"> <li>1. Explain the tools for measuring the frequencies of diseases such as ratio, proportion, rate.</li> <li>2. Explain the definition of incidence and prevalence of</li> </ol>	: Class activities, Final Exam	: Lecture, Question and Answer			Gordis Epidemiology Textbook, 2024, 7th Edition

	<p>disease and their application.</p> <p>3. Explain the factors affecting the incidence and prevalence of disease.</p> <p>4. Be able to calculate and interpret the incidence of disease in the population.</p> <p>5. Be able to calculate and interpret cross-sectional and periodic prevalence.</p>					
<p>Mortality and Other Measures of Disease Impact</p>	<p>1. Explain the definition of crude mortality rate, specific and standardized mortality.</p> <p>2. Name the types of specific mortality rates.</p>	<p>: Class activities, Final Exam</p>	<p>: Lecture, Question and Answer</p>			<p>Gordis Epidemiology Textbook, 2024, 7th Edition</p>

	<p>3. Be able to calculate and interpret crude and specific mortality rates.</p> <p>Be able to calculate standardized mortality.</p>					
<p>Observational Studies and Case-control Studies</p>	<p>1. Explain the types of epidemiological studies to give</p> <p>2. Explain the definition and application of descriptive studies.</p> <p>3. Explain the definition, types and application of analytical studies.</p> <p>4. Explain the definition and method of case report studies, case series.</p> <p>5. Describe the design and framework of a cross-sectional study.</p> <p>6. Explain the method of</p>	<p>: Class activities, Final Exam</p>	<p>: Lecture, Question and Answer</p>			<p>Gordis Epidemiology Textbook, 2024, 7th Edition</p>

	<p>analyzing data collected in cross-sectional studies.</p> <p>7. Explain the limitations and advantages of cross-sectional studies.</p> <p>8. Explain the definition and application of case-control studies.</p> <p>9. Describe how to design a case-control study.</p> <p>10. Explain assimilation in case-control studies.</p> <p>11. Describe the types of bias in case-control studies.</p> <p>12. To be able to calculate and interpret the odds ratio.</p> <p>13. Explain the advantages and disadvantages of case-control studies.</p>					
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Cohort Studies	<ol style="list-style-type: none"> <li>1. Explain the definition and application of cohort studies.</li> <li>2. Describe how to design a cohort study.</li> <li>3. Explain the types of cohort studies.</li> <li>4. Describe the types of bias in cohort studies to give</li> <li>5. Be able to calculate and interpret the relative risk.</li> </ol>	: Class activities, Final Exam	: Lecture, Question and Answer			Gordis Epidemiology Textbook, 2024, 7th Edition
Comparison of cohort and case-control studies	<ol style="list-style-type: none"> <li>1. Compare the design of cohort and case-control studies.</li> <li>2. Explain the advantages and disadvantages of cohort and case-control studies.</li> <li>3. Compare the types of risk assessment indicators in cohort and case-control studies.</li> </ol>	: Class activities, Final Exam	: Lecture, Question and Answer			Gordis Epidemiology Textbook, 2024, 7th Edition

	4. Explain the use of cohort and case-control studies.					
Randomized Trials	<ol style="list-style-type: none"> <li>1. Explain the types of experimental studies</li> <li>2. Explain the definition and application of clinical trial studies.</li> <li>3. Explain how to design clinical trial studies.</li> <li>4. State the types of bias in clinical trial studies.</li> <li>5. Describe blinding and its types in clinical trial studies.</li> <li>6. Explain the advantages and disadvantages of experimental studies.</li> </ol>	: Class activities, Final Exam	: Lecture, Question and Answer			Gordis Epidemiology Textbook, 2024, 7th Edition
Diseases screening (1)	<ol style="list-style-type: none"> <li>1. State the importance of screening for diseases.</li> <li>2. Explain the validity of a</li> </ol>	: Class activities, Final Exam	: Lecture, Question and Answer			Gordis Epidemiology Textbook, 2024, 7th Edition

	<p>diagnostic/screening test.  3. Explain sensitivity, specificity, positive and negative predictive value, accuracy, false negative and false positive percentages in screening tests  4. Be able to calculate and interpret sensitivity, specificity, positive and negative predictive value, accuracy, false negative and false positive percentages in screening tests.</p>					
Diseases screening (2)	<p>1. Explain sequential and parallel screening tests.  2. Be able to calculate and interpret the net sensitivity, net specificity of sequential and</p>	: Class activities, Final Exam	: Lecture, Question and Answer			Gordis Epidemiology Textbook, 2024, 7th Edition

	<p>parallel screening tests.</p> <p>3. The relationship between disease prevalence, specificity and sensitivity with value Describe positive and negative news.</p> <p>4. Define the reliability of a screening/diagnostic test.</p> <p>5. Explain the factors affecting the reliability of a test.</p> <p>6. Calculate and interpret the kappa coefficient to examine the level of agreement between observers.</p>					
From Association to Causation	<p>1. Explain the concept of Association and its types in Epidemiology.</p> <p>2. Explain the concept of causal relationship and</p>	: Class activities, Final Exam	: Lecture, Question and Answer			Gordis Epidemiology Textbook, 2024, 7th Edition

	types of causal relationships. 3. State the criteria of the causal relationship					
Review						