

Course Unit	Epidemiology		Field of study	Health	
Master in	Applied Health Sciences - Biotechnology		School	School of Health	
Academic Year	2023/2024	Year of study	1	Level	2-1
Type	Semestral	Semester	1	ECTS credits	3.5
			Code	5055-669-1106-00-23	
Workload (hours)	94,5	Contact hours	T -	TP -	PL -
			TC -	S -	E -
			OT -	O	42

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s) Maria Cristina Martins Teixeira

Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:

1. To understand the epidemiology as a crucial tool in describing health status and assessing the association between health and different risk factors.
2. To assess community health by using measures of disease frequency.
3. To describe the epidemiological study designs their applicability, strengths and weaknesses.
4. To assess the association between a risk factor and a disease, as well as, the impact when preventing the exposure to risk factors.
5. To make a critical reflection and to apply the technical knowledge on epidemiological surveillance, in the planning, evaluation and decision making.

Prerequisites

Before the course unit the learner is expected to be able to:
Not applicable

Course contents

Importance of epidemiology. Measuring disease. Determinants of disease when managing multifactorial causation. Epidemiological study design. Measures of association and impact. Validity of the methods of diagnosis and screening. Epidemiological surveillance. Epidemiology of noncommunicable diseases. Ethical issues.

Course contents (extended version)

1. Definition of epidemiology and its role in improving the community health
2. Measures of frequency of disease
 - To compute and to read mortality rate, prevalence, risk and incidence
 - Health indicators
 - Data sources
3. Determinants, risk factors and protective factors for multifactorial causation of disease
4. Epidemiological studies
 - Cohort study, case-control study and cross-sectional study
 - Strengths and weaknesses of each epidemiological study design
5. Measures of association and impact
 - To compute and to read the relative risk and the odds ratio
 - To compute and to read the attributable risk and the etiologic fraction
 - Confounding and interaction
6. Validity of the methods of diagnosis and screening
 - Reproducibility and validity, sensitivity and specificity
 - Predictive value of positive test and predictive value of negative test
 - Screening
7. Epidemiological surveillance
 - Mechanism of transmission and control of infections. Antimicrobial resistance
8. Epidemiology of noncommunicable diseases
9. Ethical issues

Recommended reading

1. Hernández-Aguado, I., Miguel, A. G.; Rodríguez, M. D.; Monrull, F. B.; Benavides, F. G.; Serra, M. P et al. (2013). Manual de Epidemiología y Salud Pública (2ª. ed.). Madrid: panamerica.
2. Oliveira, A. G. (2009). Bioestatística, Epidemiologia e Investigação: Teoria e Aplicações. Lisboa: LIDEL.
3. JeKel J., Katz, D. I. & Elmore, J. G. (2006). Epidemiologia, Bioestatística e Medicina Preventiva, (2ª. Ed.). Porto Alegre: Artmed
4. Gordis L. (2010) Epidemiologia. Lusodidacta

Teaching and learning methods

Theoretical-practical classes include a brief exposition of the subject and the practical application of contents based on exercises and questions by using active methods such as flipped classroom

Assessment methods

- Practical Exercises 100% - (Regular, Student Worker) (Final, Supplementary, Special)

Language of instruction

1. Portuguese
2. Portuguese, with additional English support for foreign students.

Electronic validation

Maria Cristina Martins Teixeira	Ana Maria Geraudes Rodrigues Pereira	Ana Maria Nunes Português Galvão	Adília Maria Pires da Silva Fernandes
21-11-2023	22-12-2023	22-12-2023	03-01-2024