Course Title	**EPIDEMIOLOGY AND BIOSTATISTICS**				
Course Code	DLMCHC101				
Course Type	Mandatory				
Level	MSc (Level 2)				
Year / Semester	1st /1 Semester				
Teacher's Name	Dr. Panagiotis Paoullis/Dr. Dimitra Sifaki Pistolla/Dr. Marina Vafeiadi				
ECTS	10	Lectures / week	3h/ week	Laboratories / week	---
Course Purpose and Objectives	The aim of the course is to provide specialized knowledge, statistical data and methods and their applications in the field of public health. In addition, it deals with the study of various factors that might affect human health of the population. The course will provide health professionals with the appropriate knowledge to fully understand the concept of Public and Community Health, to develop and implement appropriate strategies and actions, with the ultimate goal of timely treatment of threats to the health of the population. Moreover, it aims to prepare students implement the appropriate measures to promote health and research.				
Learning Outcomes	At the end of the course, students should be able to: • Recognize data types (discrete, continuous, ordered, and nominal), variable types, and construct frequency tables and graphs. • Identify, calculate and explain the measures of central tendency (average, median, prevailing value) and the measures of variability and dispersion. • Understand the concept of probability, the concept of case control, the zero and alternative hypothesis and their usefulness in the Biological Sciences. • Calculate the size and needs of population groups. • Analyze the characteristics of prospective and retrospective surveys • Calculate prevalence, impact and mortality rates • Modify the main harmful environmental factors (biological, physical, chemical and psychosocial). • Apply statistical analysis of quantitative and qualitative data				
Prerequisites	NONE	Required	NONE		
Course Content	Presentation of data (discrete, continuous, ordinal and nominal) and types of variables. Frequency tables and graphs (histograms, frequency polygons and line graphs). Applications.				

	Measures of central tendency (mean, median, mode). Applications to data line and grouped by the biological sciences. Measures of variability and dispersion (range, dispersion and standard deviation) for lined and grouped data. The concept of probability. Transactions between possibilities (conditional probability, union, intersection probability and complementary possibility). Relative ratio of additional possibilities. Probabilistic probability distribution - Normal distribution. Hypothesis testing. The concept of the null and the alternative hypotheses and their usefulness in Biological Sciences. The concept and the sample and its size. The distribution of chi-square. Contingency tables and chi-square test. 2x2 contingency tables and independent chi-square test. The concept of linear correlation. Linear regression – scatterplot graph and their factors. Linear correlation (B0 and B1) by the least squares method. Predictions using linear regression. Definitions, usefulness and achievements of epidemiology. Indicators of morbidity, frequency of diseases (prevalence and incidence) and intensity ratios of death (mortality and morbidity). Causes Causality, statistical correlation, explanatory case. Prospective and retrospective studies (cohort studies). Systematics and random errors, confounders. Infectious diseases, virulence factors, preventive measures. Chronic diseases, sexually transmitted diseases. In addition, the course includes: Public - Community Health. Public Health Structures in Cyprus. International Public Health Service Organizations (World Health Organization, Eurostat, etc.). European Union and Public Health. Primary-Secondary and Tertiary Health Care. Environmental Health. Assessing the health of the population - Health Indicators. Health education and health promotion. Public health problem prevention strategies and policies. Epidemiological research - Health investigation in the Community. Health of children, adolescents, men, women, the elderly and vulnerable groups. Addictive substance abuse. Health of farmers and immigrants. Homeless health problems. Violence in the community. Occupational diseases. Contagious - Infectious diseases and protection of public health. Non-communicable - Chronic Diseases. Sexually Transmitted Diseases. Disease surveillance. Modern health problems are the aging of the population and the pollution of the environment. Mental health.

	Patients' rights.
Teaching Methodology	Teaching includes lectures on the theoretical background via digital presentations and teaching material rich in images and short animations for better understanding key concepts. It is also includes relevant material published in international journals to follow latest developments related to the subject matter of the course. Lecture notes and presentations are available online to be used in combination with textbooks.
Bibliography	**Textbooks:** • Παπαγεωργίου Έφη (2017).Βιοστατιστική και Εφαρμογές, 2η Έκδοση, ΕΚΔΟΣΕΙΣ ΝΕΩΝ ΤΕΧΝΟΛΟΓΙΩΝ ΜΟΝ. ΕΠΕ. • Shih, W. J., & Aisner, J. (2022). *Statistical Design, Monitoring, and Analysis of Clinical Trials: Principles and Methods*. Chapman and Hall/CRC. **References:** • Li, Y., Hsu, E. B., Davis, X. M., Stennies, G. M., Pham, N. N., Fisher, M. C., ... & Vagi, S. J. (2022). Public Health Emergency Response Leadership Training: A Qualitative Assessment of Existing Educational Opportunities and Perceived Facilitators, Barriers, and Priorities in Professional Development. *Journal of Public Health Management and Practice*, *28*(1), E283-E290. • Medina, C. Y., Kadonsky, K., Roman, F. A. R., Tariqi, A. Q., Sinclair, R., D'Aoust, P. M., ... & Naughton, C. C. (2022). The need of an Environmental Justice Approach for Wastewater Based Epidemiology for Rural and Disadvantaged Communities: A review in California. *Current Opinion in Environmental Science & Health*, 100348. • So, M., Winquist, A., Fisher, S., Eaton, D., Carroll, D., Simone, P., ... & Arvelo, W. (2022). An Evaluation of Epidemic Intelligence Service Alumni in Public Health Leadership Roles.
Assessment	Mid-Term Assessment 30% Continuous Assessment 20% Final Exam 50%
Language	Greek