COURSE DATA

DATA SUBJECT

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Name: Public health
Cycle: Undergraduate Studies
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STUDY (S)

Degree	Center	Acad. year	Period
1208 - Degree in Podiatry	Facultat d'Infermeria i Podologia	1	Second quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
1208 - Degree in Podiatry	Statistics	BASIC

COORDINATION

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SUMMARY

The Spanish Constitution of 1978, in Article 43, recognizes the right of all citizens to health protection. One of the disciplines that helps to make this right effective is Public Health, as it traditionally deals with the health of the entire population, ensuring its protection and improvement. To this end, it uses several tools: theoretical knowledge, research methods, and intervention areas to achieve this ambitious goal.

Public Health, in its current formulation, is understood as both a science and a transformative social practice. As a critical social science, it investigates the social determinants of health and establishes causal relationships between these determinants and the social conditions in which people live and work, as well as the health conditions in which individuals are cared for. As we will see, health determinants are divided into the following categories: socioeconomic inequality, education, gender, work, environment, lifestyle, and access to healthcare services.

As a social practice, Public Health translates into the way health and illness care is socially organized, involving both social organizations and the State. It is precisely the State that, through its organs and administrative structures, defines policies, establishes institutions, and develops services, actions, and activities at both individual and collective levels to achieve better quality of life and social well-being.

Public Health uses three main methods: epidemiology, participatory action research, and health planning.

The epidemiological method is typically taught in the first year within the Public Health subject, and it is a suitable tool to understand and interpret the social dimension of illness, both quantitatively and qualitatively. Its application allows, among other things, for conducting a community health study and formulating hypotheses and follow-up studies aimed at establishing causal relationships between pathology and risk. This is especially useful for developing intervention programs aimed at social needs and comprehensive healthcare.

Participatory Action Research (PAR) is used to promote critical understanding of social problems, their structural causes, and ways to overcome them. PAR can be described as an integrated activity combining social research, education, and action. It is based on democratic interaction among social stakeholders such as public administration, professionals, and the population, who participate as active agents in creating knowledge, intervening in controlling health determinants, and setting criteria for prioritizing community action.

Health planning is highly useful for improving healthcare services and their quality. If the goal of planning is to improve the health level, then the criteria must respond to the population¿s actual needs. Health planning is a complex administrative activity since it involves various techniques that depend on each country¿s social conditions.

To act on health determinants and reduce the negative effects of diseases, Public Health works through five areas of intervention to ensure optimal population health: health promotion and protection, disease prevention, personalized curative care, and health administration. Health promotion/protection and health administration are carried out at the community level, whereas some prevention techniques and curative/rehabilitative care are mostly directed at individuals.

Health Promotion refers to a set of actions aimed at improving the quality of life and health status of the population. For this, government measures are essential, implemented through sectoral policies targeting social, economic, and environmental conditions. In other words, health is promoted by ensuring peace, good living standards, food, employment, sufficient income, good working and housing conditions, education, social and health services, physical culture, rest and recreation facilities, a healthy environment¿ and by encouraging public participation in community activities and decision-making processes. Health promotion is therefore aligned with social promotion, within a state policy that directly impacts the health of individuals, families, and communities. In this sense, Public Health acts as a bridge between social policy and the healthcare system, seeking coherence between both approaches.

Health Protection refers to the precautions adopted to shield citizens from risks and dangers. These actions are mainly legislative and cover both the general environment and specific settings, as well as consumer products. Activities include regulation, monitoring, and control of environmental risk factors (biological, physical, chemical, and psychological) that can affect human well-being and survival. These are community-level interventions, involving techniques of community-based health action targeting the environment, quality certification of new drugs and biological substances for medical use, medical equipment and technologies, and enforcement of laws and regulations aimed at protecting public health.

It is obvious that all human populations are organized into societies (hence the necessity of social sciences to fully understand population health). Public health research goes beyond human biology and focuses on the study of health determinants in human populations. From this perspective, many health problems are viewed as social issues, rather than solely individual ones. Reference parameters thus shift, requiring tools

from social sciences and epidemiology to technically and theoretically interpret the object of study as a social process, in all its historical, social, political, and economic dimensions.

For this reason, public health research focuses on two main areas of analysis: epidemiological research and health systems research. The former studies the frequency, distribution, and determinants of health needs¿understood as conditions requiring attention. This can be approached from two angles: starting from a group of determinants (e.g., environmental, occupational, genetic, or social epidemiology), or from a specific health or disease condition (e.g., positive health, infectious diseases, chronic illnesses, or injuries) to explore its multiple determinants.

Disease prevention includes all activities and measures carried out by health services to avoid the onset, progression, and complications of diseases, targeting both individuals and populations. Population-level prevention is closely related to Health Education, within the scope of health promotion.

Curative and rehabilitative care is aimed at treating and healing sick and/or dependent individuals through actions focused on restoring health and quickly reintegrating them into normal life, via comprehensive care.

Dependent individuals are those who, due to lack or loss of physical, psychological, or intellectual capacity, require significant assistance to carry out daily activities. This category includes children with severe developmental disorders, young and adult individuals with serious accident-related sequelae, people with profound intellectual disabilities, those suffering from widespread neurological injuries, mentally ill patients with severe impairments, and in general, patients with chronic degenerative diseases. Also included are terminal patients or those in acute situations requiring temporary home care.

Providing comprehensive care to these groups is a major challenge for health and social services, which must meet their needs by facilitating accessibility to various services and ensuring continuity of care across services. This strategy requires the development of home care services, family and informal caregiver support, and alternatives to permanent institutionalization, such as convalescent units, day hospitals, day centers, temporary stays, supervised housing, etc.

Health Administration, in addition to its traditional roles in preventive, curative, and rehabilitative service management, now includes scientific management techniques of healthcare services, integrated into overall strategy. It encompasses all activities related to planning, organizing, administering, financing, evaluating, and controlling health services and programs, using permanent quality assurance systems, and supervising compliance with standards by direct and indirect service providers.

Interdisciplinarity and Research in Public Health

Social and health problems are undoubtedly the result of a plural and complex reality, requiring new solutions. Poor urbanization with increasingly deteriorated centers and overcrowded slums, unemployment, poverty, immigration, unsanitary working conditions, workplace and traffic accidents, climate change, emerging infectious diseases, AIDS, drug addiction, alcoholism, tobacco use, gender-based violence, mental illnesses, population aging, and many other examples are all social and health problems. They have intertwined causes, without clearly defined boundaries, and demand interdisciplinary approaches involving

multiple methodologies to address them effectively.

Thanks to the contributions of various sciences, which complement each other, it is possible to better understand any part of social reality and conduct analysis with an integrated vision.

The interdisciplinary nature of Public Health requires training that incorporates knowledge from sociology, anthropology, psychology, law, epidemiology, statistics, economics, biology, physics, medicine, pharmacology, nursing sciences, among others.

Interdisciplinarity and transversality are key to integrating and giving coherence to social sciences, providing a more comprehensive explanation of reality. While the health-illness process has a clear biological materiality (since it affects individuals and populations) its essence is collective, and thus requires the instruments offered by sociology to interpret it as a social process, in its historical, social, political, and economic dimensions. From this perspective, the biological is integrated into the social, and the central category of analysis becomes social reproduction.

The incorporation of the analytical category of gender into health research has shown that the epidemiological pattern of health and illness between men and women is not only due to biological differences but also to lifestyle patterns and risk factors linked to their gender-based living and working conditions, leading to inequalities in disease manifestation and access to healthcare. These differences explain why women experience higher morbidity and disability than men despite lower mortality and longer life expectancy, especially in industrialized countries.

Statistics is a transversal discipline that supports physics, social sciences, and public health. Public health professionals need solid statistical knowledge and skills because understanding and applying statistical principles and methods is essential for effective public health practice and for interpreting health data critically, distinguishing between arbitrary opinions and scientifically evaluated facts.

The need for a statistical approach is widely recognized in epidemiological research and the practice of Public Health disciplines, which study communities or populations where laws of large numbers and random fluctuations clearly apply. Statistical concepts are also used in making clinical diagnoses or predicting outcomes of population-level intervention programs. Ultimately, knowledge of statistical methods is closely linked to good research practices in health, being essential for proper and critical interpretation of results.

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

There are no specified enrollment restrictions with other subjects of the curriculum.

OTHER REQUIREMENTS

For a better understanding of the subject, students should have basic knowledge of:

Biostatistics (probability distribution, hypothesis testing, statistical significance, as well as fundamentals of demography).

Social sciences (understanding of the environment).

Biology (life sciences).

History.

COMPETENCES / LEARNING OUTCOMES

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Acquiring the concepts of health and disease. Identify the determinants of health in the population from a gender perspective. Develop the factors that influence the health-disease phenomenon. Design and practical application of prevention protocols. Public health. Concept, method and use of epidemiology.

Know the Spanish health system and the basic aspects related to the management of healthcare services, mainly those related to podiatric care and rehabilitation, taking account of gender perspective.

DESCRIPTION OF CONTENTS

0. COURSE INTRODUCTION

This represents the students¿ first contact with the subject. This session will be used to introduce and discuss the following points with the class:
a) The syllabus of the Public Health course.
b) The objectives and competencies to be achieved throughout the course.
c) Teaching and learning strategies.
d) Assessment.

1. UNIT 1: INTRODUCTION TO PUBLIC HEALTH

Topic 1: Historical background of Public Health and the current concept of Public Health. The role of the State in health matters. Medical policing. Social Medicine and Social Security. The Welfare State. The National Health System. Social actors. Nursing in Public Health. Public health as a science and a political practice. Areas of action. Methods. Interdisciplinarity. Health research. Functions of Public Health. (2 h)

Topic 2: Health and disease. Human Ecology. The concept of health as a social construct. Approaches to the concept of health. Dialectical evolution as a result of social changes. Disease: definitions. Scientific perceptions of disease. Elements shaping disease. The social construction of disease. Medicine and social control. Concept of ecology and environment: physical-chemical support, biological component, social component, and human component. Human transformation of nature. (2 h)

Topic 3: The health-disease process. Determinants of health. Elements that determine individual and/or community health. Lalonde model. WHO health determinants. Dahlgren and Whitehead model. Main characteristics of health determinants. (2 h)

2. UNIT 2: HEALTH EQUITY

Topic 4: The health gradient. The health triangle. Social inequality in health. Social class. Risk groups towards inequality. Differences and inequalities in how men and women experience illness. Health equity. (2 h)

Topic 5: Evolution of the epidemiological pattern and risk transition. Demographic transition: birth rate, mortality, and migration. Epidemiological transition. Risk transition. Current demographic and epidemiological patterns: Spain. (2 h)

3. UNIT 3: METHODOLOGICAL FOUNDATIONS FOR THE STUDY OF DISEASE IN THE COMMUNITY

Topic 6: Communicable diseases. Definition. Evolution. Preliminary concepts. Importance. Epidemiological chain. Presentation modes. Control methods. (2 h)

Topic 7: Non-communicable diseases. Introduction. Definition. Major chronic non-communicable diseases. Epidemiological characteristics. Current relevance. Determinant factors. Mortality and morbidity. Socioeconomic impact. Prevention and control. WHO response. (2 h)

Topic 8: Consequences of disease: disability and dependency. Objective. Definition of disability. Background and concepts. Importance. Classification. Disability in Spain. Functional capacity. WHO recommendations. Dependency Law in Spain. (2 h)

Topic 9: Work-related health issues. Introduction. Employment data in Spain and Europe. Employment and health. Occupational health and risk factors. Occupational diseases. Prevention of health damage. Risk maps. (2 h)

Topic 10: Nutrition and public health. Introduction. Food and health. Dietary patterns and health. Nutrition and cardiovascular disease. Nutrition and cancer. Nutrition and diabetes. Nutrition and obesity. Foodborne infections. (2 h)

4. UNIT 4: HEALTH PROTECTION: HEALTH PROBLEMS AND THEIR CONTROL

Topic 11: Culture and public health. Objective. Characteristics of culture. Socioeconomic distribution. Health inequality. Culture and behavior. Medical anthropology. The cultural system of health. Habits. Culture and health in Spain and Europe. Culture and health in the developing world. (2 h)

Topic 12: Health promotion. Ottawa Charter. Empowerment. Community participation. Models of health-related activities. Health activity maps. Approaches to health promotion. RIU Projects. (2 h)

Topic 13: Introduction to epidemiology. Concept. Background. Characteristics. Objectives of epidemiology. (2 h)

Topic 14: Applications of Epidemiology. Epidemiological surveillance: concept, sources and types of data in the surveillance process, and levels of epidemiological surveillance. Epidemiology and health services: identifying and prioritizing community health problems and evaluating health strategies and services. (2 h)

Topic 15: Measurement in Epidemiology. Measures of disease frequency. Mortality measures. Measures of association and impact. Accuracy and validity. Causality criteria in epidemiology. (2 h)

Topic 16: Descriptive epidemiology. Disease distribution by person, place, and time. Types of descriptive epidemiological studies. (2 h)

Topic 17: Analytical epidemiology. Cohort studies. Case-control studies. Cross-sectional studies. (2 h)

Topic 18: Experimental and quasi-experimental epidemiology. Randomized trials. Community intervention trials. (2 h)

5. UNIT 5: HEALTH PROTECTION: HEALTH PROBLEMS AND THEIR CONTROL

Topic 19: Diagnostic tests. Objectives. Validity of diagnostic tests. Sensitivity and specificity. ROC curves. Positive and negative predictive values. Early detection. (2 h)

Topic 20: Health planning. Introduction, objectives, and characteristics. Levels: regulatory, strategic, and operational. Planning process. Situation analysis. Definition of objectives. Selection and implementation of activities. Evaluation. (2 h)

6. PRACTICAL PROGRAM: EPIDEMIOLOGICAL RESEARCH WORKSHOP

This workshop is related to the course 34331 Biostatistics and ICTs.

Students will have the opportunity to develop their epidemiological skills through practical exercises conducted in the computer lab. The aim is to foster interest in health research from the perspective of epidemiological reasoning.

The workshop consists of five sessions, each two hours long. Students will be provided with a dataset related to Podiatry activities and will be required to conduct an epidemiological analysis.

The student activity will follow four stages:

Familiarization with the software tools necessary to conduct the epidemiological analysis.

Bibliographic research on podiatric pathologies.

Data preparation for analysis.

Execution of the epidemiological analysis.

Preparation of a report presenting the results obtained.

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Tutorials	2,00
Theory	48,00
Computer classroom practice	10,00
Total hours	**60,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	0,00
Independent study and work	90,00
Preparation of lessons	0,00
Preparation for assessment activities	0,00
Resolution of case studies	0,00
Total hours	**90,00**

TEACHING METHODOLOGY

Depending on the competencies, learning objectives, and course content, a variety of methods will be used: expository teaching, cooperative work, group discussions, text commentary, practical and applied activities (both individual and group-based), etc. A participatory and dynamic methodology will be employed in order to encourage student engagement and participation in class, including teacher-led explanations to clarify theoretical concepts. Debates will be used when necessary, and students will carry out practical work, presentations, and projects related to the teaching profession and the themes of the module.

FOR ALL STUDENTS

-Practical activities and group tutorials established in the course guide will be carried out in person.

-Individual tutorials will preferably be held online.

IN-PERSON ACTIVITIES (60%)

Theoretical-practical classes: Participatory lectures supported by audiovisual media in which course content will be addressed, discussed, and activities will be carried out.

Group work: Small group projects (3 or 4 students) on course content, culminating in either an oral presentation to the whole class or submission of the final work.

Tutorials: Learning sessions led by the instructor where students can review and discuss class materials and topics and ask questions.

Assessment: Written exams covering theoretical and practical content, as well as the submission and/or presentation of individual and group assignments.

Supplementary activities: Additional educational activities related to the module, such as lectures, workshops, video forums, visits, etc.

NON-IN-PERSON ACTIVITIES (40%)

Independent study and work

Studying and preparing course content.

Preparing individual and group tasks and assignments.

Studying and preparing for oral and/or written exams.

The virtual classroom will serve as a communication tool between instructors and students, and as a platform for sharing documents and teaching support materials for exclusive use in the course.

EVALUATION

Workshop Evaluation (Practical Sessions in the Computer Lab)

Evaluation will be based on solving exercises or submitting assignments completed during practical sessions in the computer lab. A guide document for these assignments will be provided in due course. Attendance at these practical sessions is mandatory, and attendance will be monitored via a sign-in sheet.

The exercises or assignments will be graded on a scale from 0 to 10. The final grade for each workshop will

be the weighted average of the individual scores, based on the specific weight assigned to each task, which will be announced accordingly.

Evaluation of Theoretical Content

The theoretical content will be assessed through a written exam, using so-called objective tests or multiple-choice questionnaires. These allow for broad coverage of the subject matter due to the high number of questions and the ease with which students can answer.

The exam will consist of 45 to 55 questions, each with three possible answers, of which only one will be correct. Questions may refer to both theoretical content and practical content covered in the computer lab.

The score, ranging from 0 to 10, will be calculated using the following formula:

P = (A ¿ E / (n ¿ 1)) × P / T

Where:

- P = Final score
- A = Number of correct answers
- E = Number of incorrect answers
- n = Number of answer choices
- T = Total number of questions
- P = Maximum possible score

Summative Formative Assessment

The final summative evaluation will take into account the progress and achievements made during formative assessment.

In this regard:

-The score from the multiple-choice test will account for 70% of the final grade.

-The practical work and its presentation will account for the remaining 30%.

To calculate the weighted average, students must achieve at least 5 out of 10 on the test and pass each of the workshops (also with a score of 5 or higher out of 10). Otherwise, the recorded final grade will be:

-The test score, out of 10, if it is below 5.

-The lowest workshop score below 5, out of 10, if the test has been passed.

Scores from successfully completed workshop exercises/assignments will be carried over to the second exam session.

During the second session, students will retake the multiple-choice test. If they have not passed the workshop component, they must submit a research project.

REFERENCES

- 1. Argimon Pallás, J Mª, Jiménez Villa, J. (2007) Métodos de Investigación Clínica y Epidemiológica. Ed. Elsevier. 3a ed. Madrid. 2. Arrivillaga, M. (2020). Salud pública: Teoría y aplicaciones. Colombia. Editorial El Manual Moderno Colombia S.A.S Hernández Aguado, I. et al. (2010) Manual de epidemiología y salud pública para grados en ciencias de salud. Madrid: Panamericana. 3. Miguel A. Martínez-González. Bioestadística amigable / editores: Barcelona, Elsevier, (2014) 4. Del Rey Calero, J. Fundamentos de epidemiología para profesionales de la salud. (2007) Madrid: Ed Ramón Areces,. 5. Fernández-Crehuet, J., Gestal, JJ., Delgado, M., Bolúmar, F., Herruzo, R., & Serra, Ll. Majem, (2015). Piédrola Gil. Medicina preventiva y salud pública. España. Elsevier España. 6. Frías Osuna, A. (2000) Salud Pública y educación para la salud, Barcelona Ed Masson. 7. Gustavo Malagón-Londoño,Jairo Reynales Londoño, (2020) Salud Pública, Editorial Medica Panamericana. 8. Hernández Aguado et al. (2008) Manual de epidemiología y Salud Pública en ciencias de la salud, Madrid: Ed. Médica Panamericana. 9. Hidalgo, A. & Lima, AI. (2020), Trabajo social socio-sanitario: claves de salud pública, dependencia y trabajo social. España. Editorial Sanz Y Torres S.L. 10. Malagón-Londoño, G., & Reynales-Londoño, J. (2020). Salud Pública. España. Editorial Médica Panamericana. 11. Martínez Navarro, F. et al. (1997) Salud Pública. Madrid: McGraw-Hill/Interamericana.

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