



UNIVERSITÀ DI PAVIA

Anno Accademico 2019/2020

PHYSICS, STATISTICS AND COMPUTER SCIENCE

Enrollment year	2019/2020
Academic year	2019/2020
Regulations	DM270
Department	DEPARTMENT OF CLINICAL-SURGICAL, DIAGNOSTIC AND PEDIATRIC SCIENCES
Course	MIDWIFERY
Curriculum	PERCORSO COMUNE
Year of study	1°
Period	1st semester (01/10/2019 - 15/01/2020)
ECTS	6
Language	Italian

The activity is split

503502 - MEDICAL PHYSICS AND RADIOPROTECTION

503391 - BASIC COMPUTER SCIENCE

500836 - MEDICAL STATISTICS



MEDICAL PHYSICS AND RADIOPROTECTION

Enrollment year	2019/2020
Academic year	2019/2020
Regulations	DM270
Academic discipline	FIS/07 (APPLIED PHYSICS (CULTURAL HERITAGE, ENVIRONMENT, BIOLOGY AND MEDICINE))
Department	DEPARTMENT OF CLINICAL-SURGICAL, DIAGNOSTIC AND PEDIATRIC SCIENCES
Course	MIDWIFERY
Curriculum	PERCORSO COMUNE
Year of study	1°
Period	1st semester (01/10/2019 - 15/01/2020)
ECTS	2
Lesson hours	30 lesson hours
Language	
Activity type	WRITTEN TEST
Teacher	MALGIERI MASSIMILIANO - 2 ECTS
Prerequisites	
Learning outcomes	
Course contents	
Teaching methods	
Reccomended or required readings	
Assessment methods	
Further information	



BASIC COMPUTER SCIENCE	
Enrollment year	2019/2020
Academic year	2019/2020
Regulations	DM270
Academic discipline	INF/01 (COMPUTER SCIENCE)
Department	DEPARTMENT OF CLINICAL-SURGICAL, DIAGNOSTIC AND PEDIATRIC SCIENCES
Course	MIDWIFERY
Curriculum	PERCORSO COMUNE
Year of study	1°
Period	1st semester (01/10/2019 - 15/01/2020)
ECTS	2
Lesson hours	30 lesson hours
Language	
Activity type	WRITTEN TEST
Teacher	VERRI ANNA - 2 ECTS
Prerequisites	=
Learning outcomes	The course is aimed at realization of the main methods of statistical analysis using a common program such as Microsoft Excel (2010 version). At the end of the course the student will have learned the elements for: - Learn how to build a data matrix; - Build graphical representations; - Analyze the data both from descriptive point of view that analytical; - The interpretation of the results.
Course contents	- Definition of electronic spreadsheet; - Programme and toolbar structure; - Creation a data matrix; - Introduction to the functions for the main descriptive statistics: Count

	cells: CONTA (); Sum: SOMMA (); Minimum: MIN (); Maximum: MAX (); Mean: MEDIA (); Mode: MODA (); Median: MEDIANA (); SD: DEV.ST (); Variance: VAR (); Range: MAX () - MIN (); Coefficient of variation: DEV.ST () / MEDIA () - Using the command Data Analysis for the analysis of descriptive statistics; - Pivot tables in single and double entry, creation of classes for quantitative variables with data display: Normal; Percentage of the total; Average; Standard deviation - Pivot Charts for qualitative variables (bars and aerogramma) and quantitative (histogram) with an explanation of the design and the layout (title, axes, legend, data labels); - Application of the correlation Pearson's test through the Data Analysis command and creation of scatter plot; - Application of unpaired t test for equal or unequal variance by means of the command Data Analysis and interpretation of the test results; - Application of the independence test (chi-square) through the use of functions: TEST.CHI.QUAD and DISTRIB.CHI.QUAD.DS and interpretation of the test result.
Teaching methods	The course is divided into lectures and exercises through the use of multimedia platform Kiro UNIPV (e.learning platform of the University of Pavia), regarding the use of Excel tools for the application of medical statistics. Specifically, students will attend lectures at one of the computer rooms made available by the University and secondarily must register for the course on structured teaching portal using the content made available (quizzes and exercises). The tutor, assigned to the course, will take care of the correction of exercises and evaluation.
Reccomended or required readings	Excel & Statistica Medica di S.Villani e P.Borrelli, Ed. MEDEA 2013
Assessment methods	Examination through the multimedia platform Kiro UNIPV, divided into two parts: 1) quiz of 10 questions about program structure and commands; 2) analysis of a data matrix according to the proposed questions.
Further information	Hours of tutoring available to students for any questions about the lessons, to the tests and the management of this course on Kiro UNIPV platform. The meetings will be scheduled by appointment. Teacher contacts: anna.verri@unipv.it
Sustainable development goals - Agenda 2030	\$lbl_legenda_sviluppo_sostenibile



MEDICAL STATISTICS	
Enrollment year	2019/2020
Academic year	2019/2020
Regulations	DM270
Academic discipline	MED/01 (MEDICAL STATISTICS)
Department	DEPARTMENT OF CLINICAL-SURGICAL, DIAGNOSTIC AND PEDIATRIC SCIENCES
Course	MIDWIFERY
Curriculum	PERCORSO COMUNE
Year of study	1°
Period	1st semester (01/10/2019 - 15/01/2020)
ECTS	2
Lesson hours	30 lesson hours
Language	Italian
Activity type	WRITTEN TEST
Teacher	VILLANI SIMONA (titolare) - 2 ECTS
Prerequisites	The course is part of the students' basic training together with Physics, preparatory to the lessons and activities in the nurses' field. To better follow the course, the student must have basic knowledge of mathematics of scientific high schools' program.
Learning outcomes	The course aims to provide the methodological principles for a scientific approach to the studies in clinical field. It is the first step in the knowledge that a nurse must have in order that the clinical research carried out is correctly set and evaluated. In detail, the course aims to develop the theoretical and practical knowledge of the most frequent basic statistical methodologies (knowledge and comprehension), as well as the ability to correctly apply this knowledge both to new experimental situations and to published research studies (ability to apply knowledge and comprehension). At the end of the course the student will be able to use the main study

planning tools and basic statistical analysis on the data; to interpret the results of a statistical analysis in an awareness and critical way; communicate pertinently what emerged; to understand the published evidence and to critically assess what exists in relation to one's work context.

At the end of the course the student will be able to independently perform basic statistical analyses and communicate in an appropriate way the findings, as well as to understand and critically evaluate the published evidences in relation to their work context.

Course contents

Introduction to Statistic and research planning

Research Protocol.

- Population, sample and sampling methods (simple random sampling; stratified random sampling; cluster sampling). Introduction to sample size.

- Data organisation: database and dataset.

Tools for descriptive analysis and interpretation of data

- Description of statistical unit and type of variables. Frequency distribution for qualitative and quantitative variables. Graphics.

- Descriptive statistics: mean, median, mode, centiles, range variance, standard deviation, coefficient of variation.

- Pearson's correlation coefficient.

- Introduction to probability. Probability axioms and conditional probability. Sensitivity and Specificity of a diagnostic test. False positive and negative. Positive and negative predictive values. Normal distribution probability.

Inferential statistics

- Test of hypothesis

- Parametric unpaired t-test.

- Chi-squared test.

Teaching methods

The plan of the course is based on academic lectures and practical sections (problem solving approach).

Reccomended or required readings

- Lantieri, Riso, Ravera. STATISTICA MEDICA, McGrawHill, 2007 (revisione e adattamento di Lama e Signoriello per la Laurea in Infermieristica).

- Triola, Triola. Fondamenti di Statistica per le discipline biomediche. Pearson, 2017.

- Daniel, Cross. Biostatistica. Concetti di base per l'analisi statistica dell'area medico-sanitaria. III Edizione 2019 (Capitoli 1-4; 7).

Any other Biostatistics or Medical Statistics manual may be used.

Useful material will be on Kiro platform

Assessment methods

The examination will be written with a problem solving approach. The student must demonstrate not only to know and correctly apply the techniques of analysis (knowledge and skills), but to be able to interpret the results obtained and communicate in a scientifically correct way the evidences from the analyses (competence). Three closed questions on theory aspects are also provided.

The Professor takes appointments (Dept. of Public Health, Experimental and Forensic Medicine, U.O. of Biostatistics and Clinical Epidemiology, Via Forlanini 2, e-mail: svillani@unipv.it), usually on Tuesday.

