INTRODUCTION TO MEDICAL STATISTICS

GENERAL INFORMATION	
Course coordinator	Associate Professor Vesna Ilakovac, PhD
Assistant/Associate	Kristina Kralik, MSc
Study Programme	Integrated undergraduate and graduate university study of Medicine
Status of the course	Mandatory
Year of study, semester	2nd year, 3rd semester
ECTS	**2**
Workload (hours)	Lectures (10); Seminars (5), Practicals (15)
Expected number of students	70

COURSE DESCRIPTION

Course objectives

To enable students to use and critically evaluate basic descriptive statistical methods, assess probability and evaluate the assessment of basic statistical parameters in problems in the field of biomedicine and health.

Enrolment requirements and entry competencies

None required.

Learning outcomes at the Programme level

1.1., 2.2., 3.4., 3.5., 4.2.

Learning outcomes (5-10)

After listening to lectures, exercises, independent learning and passing the exam, students will be able to:
1. Correctly interpret basic statistical concepts.
2. Select appropriate measures to describe the given data and present them in a way that is appropriate for the real medical problem.
3. Assess the probability of a given problem by applying the basic rules of probability.
4. Select the appropriate theoretical probability distribution to estimate the probability of a given problem.
5. Interpret the standard error and confidence interval of the measurement on a given sample.

Course content

Lectures:
P1. Introduction. Types of data.
P2. Empirical distributions. Describing data distribution.
P3. Probability, the basic rules of probability.
P4. Random variable. Theoretical distributions.
P5. Sample and population. Interval estimation of parameters.
Seminars:
S1. Types of data in medical research.
S2. Presenting data.
S3. Probability in application.
S4. Adaptation of empirical distributions.
S5. Statistical tests, *P* value and statistical inference.
Exercises:
V1. Types of data. Preparation of data for computer processing.

V2. Describing and presenting the empirical distribution of data.
V3. Probability Calculation Rules.
V4. Application of theoretical probability distributions.
V5. Population parameters estimation.

Mode of teaching

Lectures; Seminars; Exercises

Student obligations

Attendance at all forms of classes is mandatory. A student may justifiably miss 30% of classes.

Monitoring student work (alignment of learning outcomes, teaching methods and grading)

Teaching activity	ECTS	Learning outcome	Student activity	Assessment methods	Grade points Min.	Max.
Class attendance	0.1	$1-5$	Class attendance	Class record	0	5
Practicals	0.4	$1-5$	Solving problems	Homework presentation	10	20
Seminars	0.4	$1-5$	Active participation in the discussion, making a presentation	Presentation	10	20
Intermediate exam	0.5	$1-2$	Independent work	Written exam	14	25
Final exam	0.6	$3-5$	Independent work	Written exam	16	30
Ukupno	**2**				50	**100**

Calculation of final grade:
To students who achieved 16 or more points in the final exam points earned during the course are added.
The evaluation is performed by absolute distribution, i.e. on the basis of the final achievement and is compared with the numerical system as follows:
A - excellent (5): 90-100 points; B - very good (4): 80-89.99 points; C - good (3): 70-79.99 points; D - sufficient (2): 50-69.99 points

Required reading (available in the library and through other media)

Title	Number of copies in the library	Availability through other media
1. Ivanković D. et al. Osnove statističke analize za medicinare. Udžbenik. Biblioteka Udžbenici i priručnici Medicinskog fakulteta Sveučilišta u Zagrebu, 1988.	6	
Teaching materials of the course leader		Merlin e-learning system

Additional reading

Petz B. Osnovne statističke metode za nematematičare, 5. izdanje, Naklada Slap, Jastrebarsko 2004.

Lang T, Secic M. How To Report Statistics in Medicine: Annotated Guidelines for Authors, Editors, and Reviewers, 2nd edition. Philadelphia: American College of Physicians, 2006.
Daniel WW. Biostatistics: a foundation for analysis in the health sciences. Udžbenik. John Wiley& Sons, Inc. 2013.

Course evaluation procedures

Anonymous, quantitative, standardized student survey on the subject and work of teachers conducted by the Office for Quality of the Medical Faculty Osijek.

Note /Other

E-learning is not included in the norm of course hours, but is used in teaching and contains teaching materials of the course leader, links to various pages, video and audio materials available on the WWW.