Subject: Basics of statistics

I. General information

Organization unit	Faculty of Physical Education	
organization unit	Chair: Tourism and Postcation	
	Supervisor: Pawei Tomaszewski	
Course name	Basics of statistics	
Subject code	6/2/II/T	
Teaching language	English	
Type of subject		
(obligatory/ facultative)	facultative	
Level of studies (eg. bachelor.		
master)	master	
Study year	1	
Semester	2	
ECTS points	3	
Teacher	Paweł Tomaszewski (pawel.tomaszewski@awf.edu.pl)	
Studies program in which the subject is realized	TOURISM AND RECREATION	
Method of realization (stationary/ distance learning)	stationary	
Prerequisites	Basic knowledge on information technology, basic skills in using formulas and functions of a calculation spreadsheet.	

II. Detailed Information

Course aims and objectives

A1	Preparing graduate student to independently collect and organize data obtained as a
	result of tourism and recreation research and how to process it using a statistical tools
A2	Facilitate the principles of formulating and verification of statistical hypotheses and the
	ability to formulate conclusions on the basis of statistical outcomes
A3	Developing practical skills of conscious and efficient use of selected computer programs
	for computational purposes and proper presentation of results of the analysis.

Learning outcomes

Learning outcome	Subject's learning outcomes				
Knowledge					
K_W06 has the knowledge about analyzing the conditions of the functioning of enterprises and non-profit institutions providing tourist and recreational services in economic and social activities; has the knowledge in the field of obtaining and analyzing statistical data	Knows the basic statistical concepts, distinguishes between types of statistical variables, types of measurement scales. Knows the methods of statistical description - empirical distribution of the variable and numerical characteristics of the distribution.				
K_W06 has the knowledge about analyzing the conditions of the functioning of enterprises and non-profit institutions providing tourist and recreational services in economic and social activities; has the knowledge in the field of obtaining and analyzing statistical data	Knows the principles of planning and conducting research in tourism and recreation. Understands the principles of collecting and organizing parametric and nonparametric data and distinguishes the methods of their processing using a statistical methods. Knows the basics of statistical inference.				
Skills					
K_U06 is able to use specialist programmes helpful in running a tourist enterprise, including central reservation systems and other programs supporting e-business	Is able to prepare research tools and conduct research in the field of tourism and recreation. Is able to use selected computer programs to process data obtained as a result of research.				
K_U06 is able to use specialist programmes helpful in running a tourist enterprise, including central reservation systems and other programs supporting e-business K_U07 has the ability to critically analyse and select information from various sources, to draw conclusions and to judge	Is able to properly interpret the results of the research and formulate conclusions based on them.				
K_U07 has the ability to critically analyse and select information from various sources, to draw conclusions and to judge	Is able to correctly present the results of tests in tables and graphs. Has the ability to prepare a written study and an oral presentation based on the results of own research.				
Social Competences					
K_K06 understands the need for lifetime learning, can inspire and organise the learning process of others	Has the need to supplement and improve acquired knowledge and skills on applied statistics.				
 K_K03 acts ethically bearing in mind the risk of violating the common good or personal rights of other people. K_K04 gets involved in individual and team work; undertakes complex professional tasks in the field he or she specialises in 	Works in a team performing various tasks.				
K_K04 gets involved in individual and team work; undertakes complex professional tasks in the field he or she specialises in K_K06 understands the need for lifetime learning, can inspire and organise the learning process of others	Consciously applies methods of statistical inference in empirical research and adheres to the principles of formal conclusion in scientific research.				

Syllabus contents

No	Title			
Classes/ Practical classes				
SC1	Statistical variables – types, entering the data, creation of stemplots and of			
	histograms; cumulative distribution function.			
SC2	Types and characteristics of continuous variables distributions, descriptive			
	statistics: measures of central tendency and of variability, degrees of freedom.			
SC3	Properties of normal distribution, testing of normality, transformations,			
	standardised variable.			
SC4	Cumulative distribution function, percentile charts – exercises.			
SC5	Standardization against individual or reference values, multivariate analysis –			
	multivariate profiles, ranking.			
SC6	Mid-semester test – verification of practical skills in utilising of cumulative			
	distribution function and of percentile charts.			
SC7	Relationships between continuous variables, assessment of correlation coefficient,			
	coefficient of determination			
SC8	Linear regression of the two variables, calculation of regression equations,			
	prediction of dependent variable, residuals, curvilinear regressions.			
SC9	Comparison of means – Student's t-test for independent data.			
SC10	Comparison of means – Student's t-test for dependent data.			
SC11	Analysis of frequency – chi-square test (G function), analysis of two-way tables			
	(2×2)			
SC12	Analysis of multi-way tables (2×3, 2×4)			
SC13	Operations with approximate numbers.			
SC14	Measurement errors. Repeatability of measurements. Intracalss correlation.			
SC15	Verification of analytic skills: statistical analysis – practical test.			

Assessment criterion:

Students' activity, test of knowledge, test of practical skills

Obligatory literature:

1. Clark D.H. (1999) Research Problem in Physical Education 2nd edition, Eaglewood Cliffs, Prentice Hall, Inc.

2. Jerry R Thomas & Jack K Nelson (2000) Research Methods in Physical Activities; Illonosis; Human Kinetics;

3. Jones, I., Brown, L. & Holloway, I. (2013). Qualitative research in sport and physical activity London: SAGE Publications Ltd

4. Rothstain A (1985) Research Design and Statistics for Physical Education, Englewood Cliffs: Prentice Hall, Inc.

5. Verma, J. P. (2011). Statistical Methods for Sports and Physical Education. Tata McGraw Hill Education Private Limited.

1ECTS point = 30 hours students work (contact + self study)

TYPES OF CLASSES	HOURS	
Contact hours	30	
Self study	60	
Total = 90 hours = 3 ECTS		