Approved: …….....
Dean (*Prof. Sonya Karabeliova, PhD, DSc*)
Date

SOFIA UNIVERSITY "ST. KLIMENT OHRIDSKI"

Subject area: *(code and name)*

F	F	P	2	2	0	2	2	2

MP Organizational Psychology and Cross-cultural management in Eng., part-time

SYLLABUS

Course:

Z	0	1	9

Statistical Methods in psychology

Lecturer: assoc. prof. Kaloyan Valentinov Haralampiev, PhD

Academic work	Type	Number of classes
In-class work	Lectures	30
Total in-class work		**30**
Out-of-class work	Reports	30
	Self-guided library/database work	30
Total out-of-class work		**60**
Total of academic work		**90**
ECTS credits in-class work		**1**
ECTS credits out-of-class work		**2**
Total ECTS credits		3

№	Grading	% of the grade
1.	Homework assignments and tests	100

Outline of the course

The course has two main focuses. The first one is the construction of complex scales and their standardization. The second one is statistical methods for analyzing the results of psychological testing.

Preliminary requirements

None

Expected outcomes

1. Students will get basic knowledge how to construct the scales of measurement and how to use statistical methods.
2. Students will acquire basic skills to work with statistical software (SPSS).
3. Students will acquire basic skills for writing analytical text and for presentation to the audience.

Syllabus

№	Topic	Number of classes
1	**Introduction to SPSS** Basic features of SPSS. Preparing of data entry table. Names and labels of the variables. Codes and labels of the categories.	2+0
2	**Data entry** Data entry. Data import from different sources.	2+0
3	**Data processing** Sources of errors in the data set. Detection of errors and their correction.	2+0

4	**Introduction to statistical methods** Populations, cases, variables. Qualitative and quantitative analyses. Tasks of the statistical analysis – descriptive statistics, relations and correlations, forecasts.	2+0
5	**Simple and complex scales** Simple scales – nominal, ordinal, interval. Likert scale – validity, reliability, internal consistency. Use of normal distribution in psychology research. Data transformation – grouping in intervals. Comparison of different scales – standardizing, normalization.	2+0
6	**Factor analysis** Detection of the number and content of the factors. Rotation. Factor analysis and Likert scale – similarities and differences.	2+0
7	**Descriptive statistics – frequency distribution** Frequency distributions of different scales. Percent, valid percent, cumulative percent. Statistics: central tendency, dispersion, skewness and kurtosis.	2+0
8	**Samples** Population and sample. Representativeness of the sample. Parameters and estimations. Errors. Inference – confidence intervals.	2+0
9	**Hypotheses testing** Null and alternative hypothesis, type I and type II errors (false negative and false positive). Comparing of means. Comparing of distributions.	4+0
10	**Measures of associations between nominal and ordinal variables** Crosstabs. Conditional distributions. Row and column percentages. Chi-square test. Cramer's coefficient. Adding of more independent variables.	2+0
11	**Measures of associations between nominal or ordinal independent variable and interval dependent variable** Analysis of variance (ANOVA). Eta-square. Post hoc tests. Adding of more independent variables. Repeated measures ANOVA.	2+0
12	**Measures of associations between interval variables** Regression and correlation analyses. Choosing of the best model. Adding of more independent variables. Rank correlation.	2+0
13	**Measures of association between independent variables of different types regardless of the type of dependent variable** Classification trees. Growing methods.	2+0
14	**Cluster analysis** Hierarchical clusters. K-means clusters. Two steps clusters. Comparison of cluster membership obtained by different methods.	2+0

Exam Questions

№	Question
1	**Introduction to SPSS** Basic features of SPSS. Preparing of data entry table. Names and labels of the variables. Codes and labels of the categories.
2	**Data entry** Data entry. Data import from different sources.
3	**Data processing** Sources of errors in the data set. Detection of errors and their correction.
4	**Introduction to statistical methods** Populations, cases, variables. Qualitative and quantitative analyses. Tasks of the statistical analysis – descriptive statistics, relations and correlations, forecasts.
5	**Simple and complex scales** Simple scales – nominal, ordinal, interval. Likert scale – validity, reliability, internal consistency. Use of normal distribution in psychology research. Data transformation – grouping in intervals. Comparison of different scales – standardizing, normalization.
6	**Factor analysis** Detection of the number and content of the factors. Rotation. Factor analysis and Likert

	scale – similarities and differences.
7	**Descriptive statistics – frequency distribution** Frequency distributions of different scales. Percent, valid percent, cumulative percent. Statistics: central tendency, dispersion, skewness and kurtosis.
8	**Samples** Population and sample. Representativeness of the sample. Parameters and estimations. Errors. Inference – confidence intervals.
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14	**Cluster analysis** Hierarchical clusters. K-means clusters. Two steps clusters. Comparison of cluster membership obtained by different methods.

Bibliography

Basic

Kaplan, R. M., D. P. Saccuzzo. *Psychological Testing: Principles, Applications and Issues, Seventh Edition. 2009*

Pallant, J. *SPSS Survival Manual. A Step by Step Guide to Data Analysis using IBM SPSS. 7th edition. Routledge, 2020*

Additional

Arabadzhiev, Z., K. Haralampiev, H. Davidov, V. Bozhilov. Evaluation of the Reliability of P. Lang's Quality of Life Scale in Bulgaria. Bulgarian medicine, vol. II, No. 1-4/2012

Arabadzhiev, Z., K. Haralampiev, I. Trayanov, N. Bueshi, H. Davidov, V. Bozhilov. Comparative Evaluation of Quality of Life in Patients with Bipolar Affective Disorder, Schizophrenia, Imminent Abortion and Pyodermia. Bulgarian medicine, vol. I, No. 3-4/2011

Hristova V., K. Haralampiev, I. Vlaev, S. Karabeliova. Trust as a Driver of Pro-Ecological Behaviour: The Power of Experts and Interpersonal Networks in a Low-Trust Context. Behavioral Sciences, 16(4)/2026

Hristova, V., K. Haralampiev, I. Vlaev, S. Karabeliova. Predicting Pro-Environmental Behavior: The Leading Influence of Environmental Attitudes. Behavioral Sciences, 15(3)/2025

Hristova, V., K. Haralampiev, I. Vlaev. Affective Commitment: a Mediator between Personality Traits and Pro-environmental Behaviour. Философия, 33(4s)/2024

Khanal, S., K. A. Schmidtke, K. Haralampiev, I. Vlaev. Considering the Role of Behavioural Fatigue in the COVID-19 Lockdown Debates in Great Britain: A Retrospective Analysis of a National Survey Assessing the Relationships between Capability, Opportunity, Motivation, and Behaviour. Behavioral Sciences, 14(9)/2024

Naydenova, V., V. Nedeva-Atanasova, K. Haralampiev. Age Dynamics of Work Engagement: A Foundation for Developing a Training Programme Within the Framework of Career Counselling. Psychological Thought, 18(1)/2025

Naydenova, V., V. Nedeva-Atanasova, K. Haralampiev, A. Getova. Engagement and Work-Life Balance in Organizational Context. Философия, 33(3)/2024

Toshkova-Hristozova, S., D. Stoyanov, K. Haralampiev. Job Satisfaction among Employees in Medical University. Bulgarian medicine, vol. III, No. 4/2013

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