UNIVERSITY OF ECONOMICS - VARNA
FACULTY OF INFORMATICS
DEPARTMENT OF STATISTICS AND APPLIED MATHEMATICS

Adopted by the FC (record №8 / 05.03.2020)

Adopted by the DC (record №7 / 17.02.2020)

ACCEPTED BY:

Dean:

(Prof. Vladimir Sulov, PhD)

SYLLABUS

SUBJECT: **"STATISTICAL SOFTWARE";**

DEGREE PROGRAMME: **"International Business", "Business and Management" and "Accounting";** BACHELOR`S DEGREE

YEAR OF STUDY: **2**; SEMESTER: **4**;

TOTAL STUDENT WORKLOAD: **180 hours; incl. curricular 60 hours**

CREDITS: **6**

DISTRIBUTION OF STUDENT WORKLOAD ACCORDING TO THE CURRICULUM

TYPE OF STUDY HOURS	WORKLOAD, hours	TEACHING HOURS PER WEEK, hours
CURRICULAR: incl. • LECTURES • SEMINARS (lab. exercises)	 30 30	 2 2
EXTRACURRICULAR	120	-

Prepared by:

1. …………………………………..
    (Prof. Veselin Hadzhiev, PhD)

2. …………………………………
    (Ch. Assist. Prof. Lyubomir Lubenov, PhD)

Head of department
of Statistics and Applied Mathematics: …………………………………
(Prof. Rosen Nikolaev, PhD)

I. ANNOTATION

The Statistical Software course offers students an opportunity to obtain the necessary practical skills to recognize the appropriate statistical tools to analyze data using computers. It covers data management, descriptive and inferential statistics, regression and classification analysis, and programming features of the statistical software packages.

The Statistical Software course is based on a combination of lectures and computer-lab practice. The objective of the course is to improve students' computer skills using Excel, SPSS, Stata, EViews, and R.

II. THEMATIC CONTENT

№	TITLE OF UNIT AND SUBTOPICS	NUMBER OF HOURS		
		L	S	L.E.
Theme 1. Statistical Software in Contemporarily Research		2	-	
1.1	The Usefulness of Statistical Software			
1.2	Different Types of Software Used in Statistics and Econometrics			
1.3	The Features of Statistical Software Packages			
1.4	The Use of *Excel, SPSS, Stata, EViews, and R* in Data Analysis.			
Theme 2. Data Management		4	2	
2.1	The Specific Features of Data Management in Statistical Software Packages			
2.2	Data Coddling			
2.3	Transforming Variables			
2.4	Import /Export Data			
2.4	Statistical Software Outputs			
Theme 3. Descriptive Statistics		4	4	
3.1	Tabular Presentations. Contingency Tables			
3.2	Graphical Presentations. Histogram and Polygon			
3.3	Numerical Descriptive Measures			
Theme 4. Statistical Inference		4	4	
4.1	Point and Interval Estimation			
4.2	Hypothesis Tests Concerning the Difference among Means and Mean Differences			
4.3	Additional Inferences			
Theme 5. Regression Analysis		4	4	
5.1	Linear Correlation			
5.2	*Nonparametric Correlation			
5.3	Linear Regression			
5.4	Logistic and Probit Regression			
5.5	Simulations			

Theme 6. Time-Series Analysis		4	5	
6.1	The Nature of the Time-series Data			
6.2	Smoothing Techniques and Trend Analysis			
6.3	Time-Series Forecasting			
6.4	Autocorrelation and Autoregression			
Theme 7. Classification Analysis and Statistical Software		4	5	
7.1	Practical Applications of the Classification Analysis			
7.2	Cluster Analysis			
7.3	Discriminant Analysis			
Theme 8. Programming Features of the Statistics Software		4	6	
8.1	Overview of Statistical Programming Languages			
8.2	SPSS Programming Language			
8.3	EViews Programming Language			
8.4	R Programming Language			
	Total:	**30**	**30**	

III. FORMS OF CONTROL:

№	TYPE AND FORM OF CONTROL	Number	extracur-ricular, hours
1.	**Midterm control**		
1.1.	Midterm exam	1	10
1.2.	Computer based Assignments	2	30
	Total midterm control:	**3**	**40**
2.	**Final term control**		
2.1.	Final Exam	1	20
	Computer based Assignment	1	60
	Total final term control:	**2**	**80**
	Total for all types of control:	**5**	**120**

IV. LITERATURE

REQUIRED (BASIC) LITERATURE:
1. Field, Andy.(2017). Discovering Statistics Using IBM SPSS Statistics. London: SAGE Publ.. XXX;
2. Mehmetoglu, Mehmet et. al.(2017). Applied Statistics Using Stata. London: SAGE Publ.. XVI;
3. Winston, Wayane L.(2016). Microsoft Excel Data Analysis and Business Modelling. Redmond: Microsoft Press. XXVI

RECOMMENDED (ADDITIONAL) LITERATURE:
1. Pallant, Julie.(2016). SPSS Survival Manual. Berkshire: McGRAW-HILL. XI;
2. Maclnnes, John.(2017). An Introduction to Secondary Data Analysis with IBM SPSS Statistics. London: SAGE Publ.. X;
3. Agung, I Gusti Ngurah.(2014). Panel Data Analysis using EViews. Chichester: John Wiley & Sons Ltd. XX
4. Agung, I Gusti Ngurah.(2009). Time Series Data Analysis Using EViews. West Sussex: John Wiley & Sons Ltd. XX
5. Baum, Christopher F.(2016). An Introduction to Stata Programming. College Station: Stata Press. XXV
6. Field, Andy et. al.(2012). Discovering Statistics Using R. London: SAGE Publ.. XXXIV
7. Zuur, Alain F. et. al.(2009). A Beginner's Guide to R. New York: Springer Science