

Specification of the course for the Book of courses

Study program		Applied statistics		
Title of the course		Survival analysis		
Teachers (for lectures)		Zoran Milošević		
Teacher/fellow teacher (for exercises)				
ESPB	6	Status of the course (obligatory (O) /elective (E))		E (Obligatory in Module Biomedicine)
Conditions				
Aim of the course	The aim of this course is to introduce students to the distributions appearing in survival analysis, the length of the components and the functions of survival. Understanding the specifics of the distribution and statistical analysis of such phenomena.			
Course outcomes	Students will be able to apply statistical machine connected to the analysis of survival in research or in decision making. Students will understand the complex statistical analysis of several models that describe survival.			
Content of the course				
Theoretical classes	The function of survival. Censored Data. Nonparametric methods for evaluating the function of survival. Nonparametric methods for comparing survival distributions. Parametric survival distribution and application. Methods for evaluation of parametric survival distributions. Parametric methods for regression models and determination of prognostic factors. Determination of prognostic factors for survival time: Cox proportional hazards model, nonproportional hazards model.			
Practical classes	Understanding research in the analysis of survival through the analysis of technical and scientific papers that use models of survival analysis. Usage of statistical software. Application of survival analysis in problems in medicine.			
References				
1	D. Collett: Modeling Survival Data in Medical Research, 2nd Edition, Chapman & Hall/CRC, 2003.			
2	J. D. Kalbfleisch R. L. Prentice: The Statistical Analysis of Failure Time Data, Wiley-Interscience; 2nd edition, 2002.			
3	T. M. Therneau P. Grambsch: Modeling Survival Data: Extending the Cox Model (Statistics for Biology and Health), Springer Verlag, 2000.			
4	P. D. Allison: Survival Analysis Using the SAS System: A Practical Guide, SAS Publishing, 1995.			
5	E.T. Lee, J.W. Wang: Statistical Methods for Survival Data Analysis, 3 rd edition, Wiley, 2003.			
The number of contact hours per week during the semester / trimester / year				
Lectures	Exercises	DON	Research work	Other classes
2	2	----	-----	-----
Teaching methods	Lectures, exercises, analysis of examples with applications, writing reports.			
Evaluation of knowledge (maximum score 100)				
Pre exam duties		points	Final exam	points
Activity during lectures		5	Oral exam	40
Activity during exercises		5		
colloquia		20		
seminars		30		