



AYDIN ADNAN MENDERES UNIVERSITY
GRADUATE SCHOOL OF HEALTH SCIENCES
BIOSTATISTICS
BIOSTATISTICS (MEDICAL)
BIOSTATISTICS (MEDICAL) MASTER
COURSE INFORMATION FORM

Course Title	Generalized Linear Models								
Course Code	BİS534	Course Level			Second Cycle (Master's Degree)				
ECTS Credit	6	Workload	154 (Hours)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course	To provide advanced students in statistics, biostatistics with a course of study in the theory and practice of modern extensions of the general linear statistical model.								
Course Content	Advanced topics and types in generalized linear models, structure of data, theory and applications of parameter estimate methods. Logistic regression, Poisson regression, analysis of dependent data, generalized estimating equations, the exponential family, the linear predictor, link functions, analysis of deviance, parameter estimation, residuals. Model choice, fitting and validation.								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Project Based Study, Individual Study								
Name of Lecturer(s)									

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	60

Recommended or Required Reading

1	Dobson, A. J., & Barnett, A. (2008). An introduction to generalized linear models. Chapman and Hall/CRC.
2	Myers, R. H., Montgomery, D. C., Vining, G. G., & Robinson, T. J. (2012). Generalized linear models: with applications in engineering and the sciences (Vol. 791). John Wiley & Sons.
3	Nelder, J. A., & Wedderburn, R. W. (1972). Generalized linear models. Journal of the Royal Statistical Society: Series A (General).
4	Lindsey, J. K. (2000). Applying generalized linear models. Springer Science & Business Media.

Week	Weekly Detailed Course Contents	
1	Theoretical	Exponential Distribution Family and Properties
2	Theoretical	Exponential Distribution Family and Properties
3	Theoretical	Basic structure of generalized linear models
4	Theoretical	Estimation for generalized linear models
5	Theoretical	Inference for generalized linear models
6	Theoretical	The basic structure of logistic regression models
7	Theoretical	Prediction and inference in the logistic regression models
8	Intermediate Exam	Midterm exam
9	Theoretical	The basic structure of log-linear models
10	Theoretical	Prediction and inference in the log-linear models,
11	Theoretical	Establishing linear and generalized linear model in R, estimation and inference
12	Theoretical	Establishing a logistic regression model in R
13	Theoretical	Prediction and inference of a logistic regression model in R
14	Theoretical	Establishing log-linear models in R, prediction and inference
15	Theoretical	Literature review and discussion
16	Final Exam	Final exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	0	3	42
Assignment	1	10	0	10
Individual Work	8	0	2	16
Quiz	14	2	1	42



Midterm Examination	1	20	2	22
Final Examination	1	20	2	22
Total Workload (Hours)				154
[Total Workload (Hours) / 25*] = ECTS				6

*25 hour workload is accepted as 1 ECTS

Learning Outcomes

1	To learn basic concepts and basic structure of generalized linear model
2	Learning the principles and methods of statistical modeling for generalized linear models
3	To be able to make linear transformations
4	To learn factor interactions, aggregate and aggregate models
5	To be able to establish a generalized linear model using statistical softwares and evaluate these models

Programme Outcomes (*Biostatistics (Medical) Master*)

1	To be able to understand the interdisciplinary interaction related with biostatistics.
2	to be able to use Theoretical and practical knowledge at the level of expertise.
3	To be able to interpret the information by integrating information from different disciplines and create new information
4	To be able to analyze the problems encountered by using research methods
5	to be able to conduct a study as an independent specialist
6	To be able to formulate solutions for complex unpredictable problems encountered by developing new approaches and taking responsibility.
7	To be able to resolve problems in environments that require leadership.
8	To be able to evaluate and direct knowledge and skills with a critical approach at the level of expertise.
9	To be able to give statistical advise at the beginning stages of preparing health related projects
10	To be able to get the knowledge and the ability of using statistical packages

Contribution of Learning Outcomes to Programme Outcomes 1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High

	L5
P1	3
P2	4
P3	3
P4	4
P5	3
P6	4
P7	4
P8	3
P9	3
P10	5

