AYDIN ADNAN MENDERES UNIVERSITY
GRADUATE SCHOOL OF NATURAL AND APPLIED SCIENCES
MATHEMATICS AND SCIENCE EDUCATION
SCIENCE EDUCATION
SCIENCE EDUCATION MASTER
COURSE INFORMATION FORM

Course Title	Statistical Methods And Implementations In Science Education								
Course Code	İFB502		Couse Level	Second Cycle (Master's Degree)					
ECTS Credit	8	Workload	200 *(Hours)*	Theory	3	Practice	0	Laboratory	0
Objectives of the Course	Understand and implement statistical methods in science education								
Course Content	Basic concepts about statistical methods, data collection, parametric and non parametric tests, correlation, regression, factor analysis								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Discussion, Case Study, Project Based Study, Individual Study, Problem Solving								
Name of Lecturer(s)	Prof. Adem ÖZDEMİR								

Assessment Methods and Criteria		
Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	60

Recommended or Required Reading	
1	Eğitimde Ölçme ve Değerlendirme - Doç. Dr. Halil TEKİN
2	Test Hazırlama Kılavuzu - Durmuş Ali Özçelik
3	Sosyal Bilimler için Veri Analizi El Kitabı, Şener Büyüköztürk
4	Assessing Science Understanding, J. J. Mintzes, J. H. Wandersee, J. D. Novak

Week	Weekly Detailed Course Contents	
1	Theoretical	What is the statistic? Its history
2	Theoretical	Basic concepts, universe, sample
3	Theoretical	What is the data? Instruments of Data Collection
4	Theoretical	Qualitative- Quantitative research
5	Theoretical	Place dispersion measurements. Dispersion of frequency, graphical show
6	Theoretical	a) parametric and nonparametric tests
7	Intermediate Exam	Midterm
10	Theoretical	Regression
11	Theoretical	Correlation
12	Theoretical	X2 test
13	Theoretical	Variance analysis
14	Theoretical	Factor analysis and implementation
15	Theoretical	Factor analysis and implementation
16	Final Exam	Term

Workload Calculation				
Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	2	3	70
Assignment	5	10	0	50
Reading	5	9	0	45
Midterm Examination	1	10	2	12
Final Examination	1	20	3	23
			Total Workload (Hours)	200
			[Total Workload (Hours) / 25*] = **ECTS**	8
**25 hour workload is accepted as 1 ECTS*				

Learning Outcomes	
1	To be able to select the appropriate analysis method for answering the subproblems.
2	To be able to choose appropriate statistical analysis.
3	To be able to choose appropriate data collection tools.
4	To be able to do analysis of reliability and validity of data collection tools.
5	To be able to understand how to present data.

Programme Outcomes *(Science Education Master)*	
1	To be able to have an expert theoretical knowledge within the field of science educatıon.
2	To be able to transfer expert knowledge gained in science education into various instructional environment.
3	To be able to integrate science education knowledge with the other disciplines and product functional knowledge
4	To be able to use information and communication technologies efficiently in conceptual learning
5	To be able to find scientific solutions to the problems in the field of science education
6	To be able to evaluate the knowledge critically in the field
7	To be able to participate in team projects in the science education field
8	To be able to adopt lifelong learning strategies to his/her studies
9	To be able to use at least one foreign language efficently in oral and verbal communication
10	To be able to share national and international data in the field of science education
11	To be able to comprehend and evaluate science-technology-society and environment interactions
12	To be able to comprehends science under the ethical values and take account of ethical considerations
13	To be able to use scientific information in the other domains that is gained in the masters field and have the transfer skills
14	To be able to follow the current development in the science education field
15	To be able to develop strategical plans and evaluate them in the context of quality processes

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

	L1	L2	L3	L4	L5
P1	5	5	5	3	5
P2				4	
P3	3	3	3	4	3
P5	5	5	5	4	5
P6	5	5	5	4	5
P8	4	4	4	4	4
P13				3	
P14	4	4	4	3	4
P15	3	3		4	3