

# RESEARCH AND EXPERIMENTAL METHODS

<b>1</b>	Course Title:	RESEARCH AND EXPERIMENTAL METHODS	
<b>2</b>	Course Code:	TAR3324-Z	
<b>3</b>	Type of Course:	Compulsory	
<b>4</b>	Level of Course:	First Cycle	
<b>5</b>	Year of Study:	3	
<b>6</b>	Semester:	6	
<b>7</b>	ECTS Credits Allocated:	4.00	
<b>8</b>	Theoretical (hour/week):	2.00	
<b>9</b>	Practice (hour/week):	2.00	
<b>10</b>	Laboratory (hour/week):	0	
<b>11</b>	Prerequisites:	-	
<b>12</b>	Language:	Turkish	
<b>13</b>	Mode of Delivery:	Face to face	
<b>14</b>	Course Coordinator:	Prof. Dr. A.TANJU GÖKSOY	
<b>15</b>	Course Lecturers:	-	
<b>16</b>	Contact information of the Course Coordinator:	agoksoy@uludag.edu.tr 0 224 2941515 Uludağ Üniversitesi Ziraat Fakültesi Tarla Bitkileri Bölümü Görükle/Bursa	
<b>17</b>	Website:		
<b>18</b>	Objective of the Course:	To train students in understanding of basic principles of developing and research. To provide knowledge on basic principles of agricultural experiments. To give knowledge on statistical principles in planning experiments. To train students in statistically analysis of agricultural experimentals.	
<b>19</b>	Contribution of the Course to Professional Development:		
<b>20</b>	Learning Outcomes:		
		<b>1</b>	Be able to understand research idea and it's important in development
		<b>2</b>	Be able to know on principles of developing and research
		<b>3</b>	Be able to earn skill on planning of research projects and their evaluation on the base national and international
		<b>4</b>	Be able to select suitable experimental design in order to increase truth degree in experiment
		<b>5</b>	Be able to measure and observe the characters according to statistical principles
		<b>6</b>	Be able to select suitable experimental design according to purpose of research
		<b>7</b>	Be able to earn skill on conducte of trials in good health and niceness
		<b>8</b>	Be able to earn skill on right and objective deciding
		<b>9</b>	
		<b>10</b>	
<b>21</b>	Course Content:		

Course Content:			
Week	Theoretical	Practice	
1	Introduction to Research and Experimental Methods ; Research and it's role in development Research and Scientific Method, planning of the researches in the national, kinds of research	Visit to ULUTEK	
2	Arrangement of the agricultural trials, increase truth degree in experiment, experimental error and factors decreasing it. Kinds of the agricultural trial	Visit to agricultural trials	
3	Basic and statistical principals; mean, Standard error of mean, Standard deviation, estimation of mean of teorical treatment population, Bartlett, Levene and F tests, significance test	Solving problems on the F-test, Barlett test, Levene test and hypothesis tests	
4	Comparison of two groups ; paired samples	Solving problems on the matched pairs	
5	Comparison of two groups ; independend samples method	Solving problems on the independend samples method	
6	Analysis of variance (ANOVA); significance tests and estimation of variance components	Solving problems on analysis of variance	
7	Introduction to experimental desing; Completely randomized design and analysis	Solving problems on the completely randomized design	
8	Grouping of different treatments; LSD and Duncan's multiple range tests and orthogonal comparisons	Solving problems on LSD and Duncan tests	
9	Completely randomized design (with different replication number) and analysis Midterm exam	Work on the completely randomized design(with different replication number)	
10	Two-way classifications; Randomized block design	Solving problems on randomized block design	
11	Statistically analysis and significance tests in randomized block design	Solving problems on statistically analysis and significance tests in randomized block design	
12	Latin Square Design; analysis of variance and significance tests	Solving problems on Latin square design	
13	Two factorial experiments; statistically analysis and significance test	Solving problems on two factorial experiments	
14	Three factorial experiments; statistically analysis and significance test	Solving problems on three factorial experiments	
22	Textbooks, References and/or Other Materials:	1.Turan, Z.M., 1995. Arařtırma ve Deneme Metodları. UÜZF Ders Notları No : 62 ,Bursa. 2. Gomez,K.A.,and A.A.Gomez.1983.Statistical Procedures for Agricultural Research.John Wiley Sons, Newyork. 3.Little,T.M.,andF.J.Hills.1977.Agricultural Experimentation.Design and Analysis.John Wiley Sons, Newyork.	
23	Assesment		
TERM LEARNING ACTIVITIES		NUMBE R	WEIGHT
Midterm Exam		1	30.00
Quiz		0	0.00
Home work-project		8	10.00
Final Exam		1	60.00
Total		10	100.00

Contribution of Term (Year) Learning Activities to Success Grade	40.00
Contribution of Final Exam to Success Grade	60.00
Total	100.00
Measurement and Evaluation Techniques Used in the Course	

## 24 ECTS / WORK LOAD TABLE

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	2.00	28.00
Practicals/Labs	14	2.00	28.00
Self study and preperation	10	2.00	20.00
Homeworks	4	3.00	12.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	12.00	12.00
Others	0	0.00	0.00
Final Exams	1	20.00	20.00
Total Work Load			120.00
Total work load/ 30 hr			4.00
ECTS Credit of the Course			4.00

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## CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS

	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
ÖK1	3	2	3	3	3	4	4	3	4	3	4	3	0	0	0	0
ÖK2	2	2	3	3	3	3	4	3	3	3	2	3	0	0	0	0
ÖK3	3	2	5	3	3	2	3	3	5	3	3	4	0	0	0	0
ÖK4	3	2	3	4	3	1	2	3	3	2	4	2	0	0	0	0
ÖK5	1	2	4	2	3	4	3	4	2	4	3	3	0	0	0	0
ÖK6	3	3	4	3	1	3	2	4	3	3	4	4	0	0	0	0
ÖK7	3	2	2	3	2	3	4	3	3	2	3	2	0	0	0	0
ÖK8	3	3	5	4	2	3	4	4	3	3	4	2	3	0	0	0

LO: Learning Objectives PQ: Program Qualifications

Contribution Level:	1 very low	2 low	3 Medium	4 High	5 Very High
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