SYLLABUS
FE 243 Introduction to Statistics

Offered every Fall Semester

3 Credits (3-0),
ECTS : 4 credits

Instructor: Medeni MASKAN, PhD

Food Engineering Department Building (Room 321)

Email address: maskan@gantep.edu.tr

Phone number: 0342 317 2321

Office hours: After class or by appointment, Office hours will be announced on my door.

Course Prerequistes: None

Course description
Basic definitions. Collecting and Analyzing Data. Normal Distribution. Hypothesis tests. Analysis of Variances. Linear Correlation and Linear Regression analysis. Analysis of Variance (ANOVA). Special application to food science and technology fields.

Course Objectives
The main objective is to provide basic knowledge of statistical concepts and techniques that will be useful in Food Science and Food Industry. From this course, the students gain an understanding and appreciation of the role of statistics in science and technology and of the steps and methods used in making sense of data by 1) gathering methods, 2) methods for summarizing data, 3) methods for analyzing data, 4) ways to report the results of analyses.

Learning Outcomes of the Course Unit
Upon successfull completion of this course, the students will we able to;

1) To learn collecting, analyzing and evaluating data

2) To learn how to calculate the variability of the data (variance and standard deviation)

3) To learn the logic of establishing one way and two way hypothesis

4) To learn the logic of comparing hypothesis tests of comparison of population or sample means

5) To learn comparing hypothesis tests of variance of populations

6) To understand the concept and logic of linear correlation

7) To learn how to find the linear equation of the experimental data by the linear regression and to learn to make various estimates using this equation

8) To learn how to compare the mean of more than two groups by means of ANOVA technique

9) To improve the knowledge and skill of analyzing whether independent variables are effective on experimental results by various hypothesis tests

Learning Activities
These include classroom lecture, use of in-class assessment technology (active learning assignments (group problem solving work), in-class demonstrations.

Assessment Tools

Exams (2)   30% each
Final (1)   40%

COURSE CATEGORY

Mathematics and Basic Sciences 40%
Engineering   20%
Engineering Design   20%
Social Sciences   20%

ECTS ALLOCATED BASED ON STUDENT WORKLOAD

Activities	Quantity	Duration	Total Work Load
Course Duration	14	3	42
Hours for off-the-classroom study (Pre-study, practice)	14	2.5	35
Assignment	10	1	10
Individual Study for Mid-term Exam(s)	2	11	22
Individual Study for Final Exam	1	12	12
Total Work Load			121
Total Work Load/ 30 (s)			4.03
ECTS Credit of the Course			4

RECOMMENDED OR REQUIRED READING

Textbooks
1. Milton, J.S., Arnold, J.C. Introduction to Probability and Statistics, McGraw-Hill-3rd Ed., 1995.
2. Weiss, N.A., Elementary Statistics, Addison-Wesley-3rd Ed., 1996.

3 Ott, L., Mendenhall, W.,Understanding Statistics, PWS-KENT-5th Ed., 1990.

4. Marzillier, L.F., Elementary Statistics, Wm.C. Brown, 1990.

Additional Resources: Lecture notes

Grading Scale

On a percentage basis.

95-100	AA	4,00
90-94	BA+	3,75
85-89	BA	3,50
80-84	BB+	3,25
75-79	BB	3,00
70-74	CB+	2,75
65-69	CB	2,50
60-64	CC+	2,25
55-59	CC	2,00
50-54	DC	1,50
45-49	DD	1,00
40-44	FD	0,50
<40	FF	0,00

COURSE CONTENT

Week	Topic
1	Basic Terms
2	Measure of Variation
3	The Normal Distribution
4	Sampling Distribution
5	Test of Hypothesis About a Single Mean (One-tailed)
6	Two-tailed Tests, Midterm Exam I
7	F-Distribution
8	Comparing Two Population Means
9	Comparing Two Population Means
10	Chi-Square Distribution (Testing a single population variance-Parametric test)
11	Chi-Square Distribution (The test of goodness of fit -Nonparametric test)
12	Linear Correlation
13	Linear Regression
14	Analysis of Variance (ANOVA), Midterm Exam II
15	ANOVA

Exam Dates

Exam 1:
Exam 2:
Final Exam: