Doç.Dr.Çiğdem Arıcıgil Çilan 2011-2012 Spring Semester Statistical Analysis – 7th Week Tutorial

4 April 2012 Wednesday

Test of More Than Two Population Means (ANOVA)

1. A car rental company is planning to add more cars into its car fleet, and is trying to decide on which one of the three types (domestic, Japanese and European) of the cars to buy. For this purpose, five cars from each of the three types were chosen randomly, and then their cost of use (10,000 TL) was recorded after having driven each of the cars for approximately 1500kms and the following results were obtained. At a 5% significance level, do you think it is possible to say that there is no significant difference between the average costs of use of these 3 types of cars? (Assume normality and equal variance)

Domestic	Japanese	European
18	20	19
17	15	17
15	16	15
19	15	18
16	15	16

2. A company is going to buy filters for its factory's funnels. A random sample of 6, 5, and 4 filters were chosen from three different types of filter producers A,B, and C, respectively. The poisonous gas that is released from these filters into the air was measured as follows in terms of milligram/m^3. As a business school student what would you suggest to the company? Please make your suggestions at a 5% significance level. (Assume normality and equal variance)

Filter A	Filter B	Filter C
12	11	13
14	13	10
13	10	11
15	11	8
11		
13		

3. A product manager has claimed that some of the companies that produce batteries have batteries that last longer than the others. To test if this claim is valid or not, 6 batteries from each of the 3 different companies were chosen randomly and their average lifetime were recorded as follows. At a 5% significance level test if the claim is valid or not. (Assume normality and equal variance)

1. Firm	2. Firm	3. Firm
41	32	33
35	37	27
48	46	36
40	53	35
45	41	27
52	43	25

4. In order to determine if the university degree has any impact on the performances of the sales representatives measured as monthly average sales (10 thousand TL), 6 social science degree graduates, 5 science degree graduates and 5 business degree graduates were chosen randomly. At a 1% significance level comment if the type of university degree has an impact on the sales respresentatives' performances. (Assume normality and equal variances)

Social Science Degree	Science Degree	Business Degree
17	22	27
18	20	27
21	25	31
22	23	31
16	25	29
14		

5. The following table gives the number of weekly errors that 4 different technicians make during a five week period. Is there any significant difference between the number of errors of these technicians? (1% significance level and assume normality and equal variance).

1. Technician	13	16	12	14	15
2. Technician	14	16	11	19	15
3. Technician	13	18	16	14	18
4. Technician	18	10	14	15	12