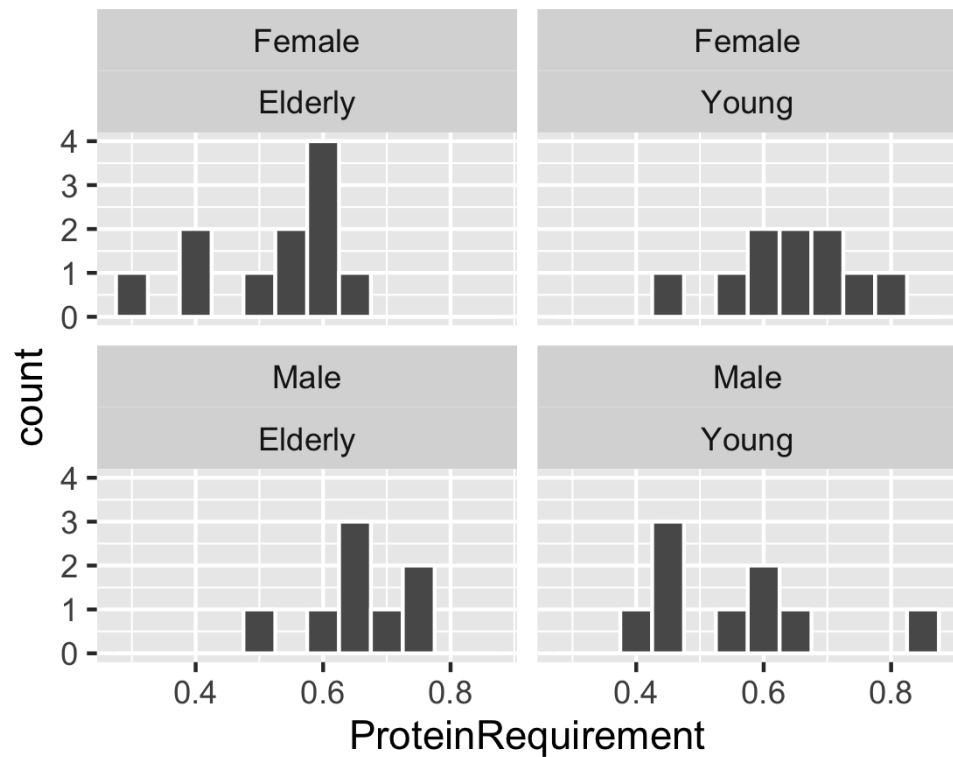


Lesson 14: Inference for Several Means (ANOVA)

Homework

Solutions

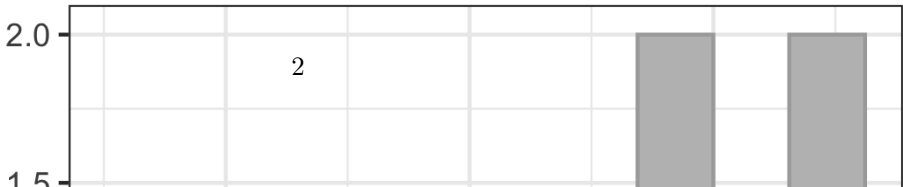
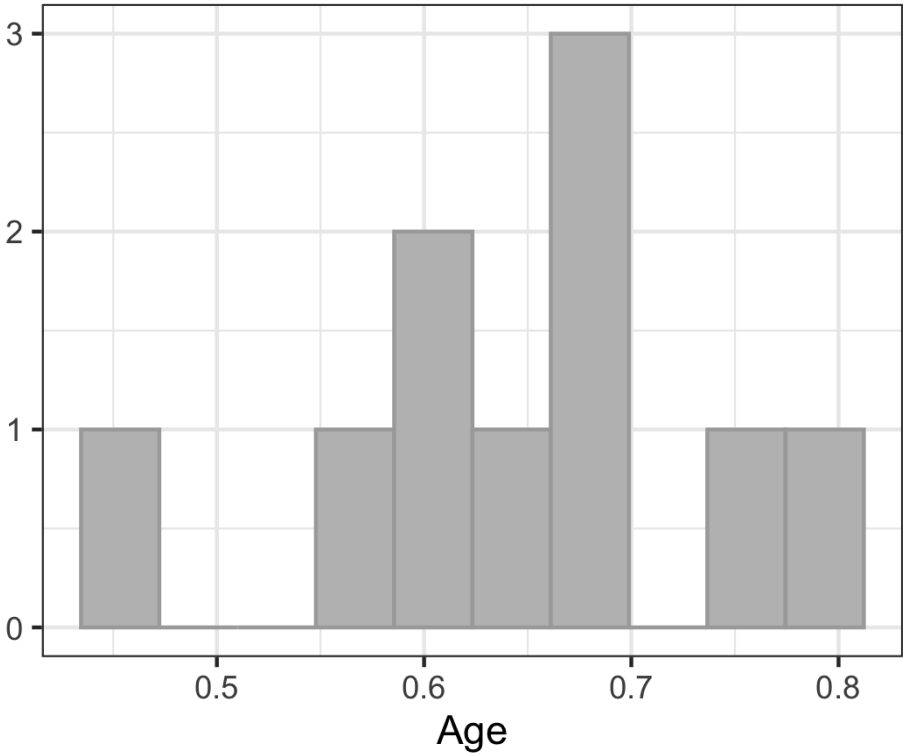
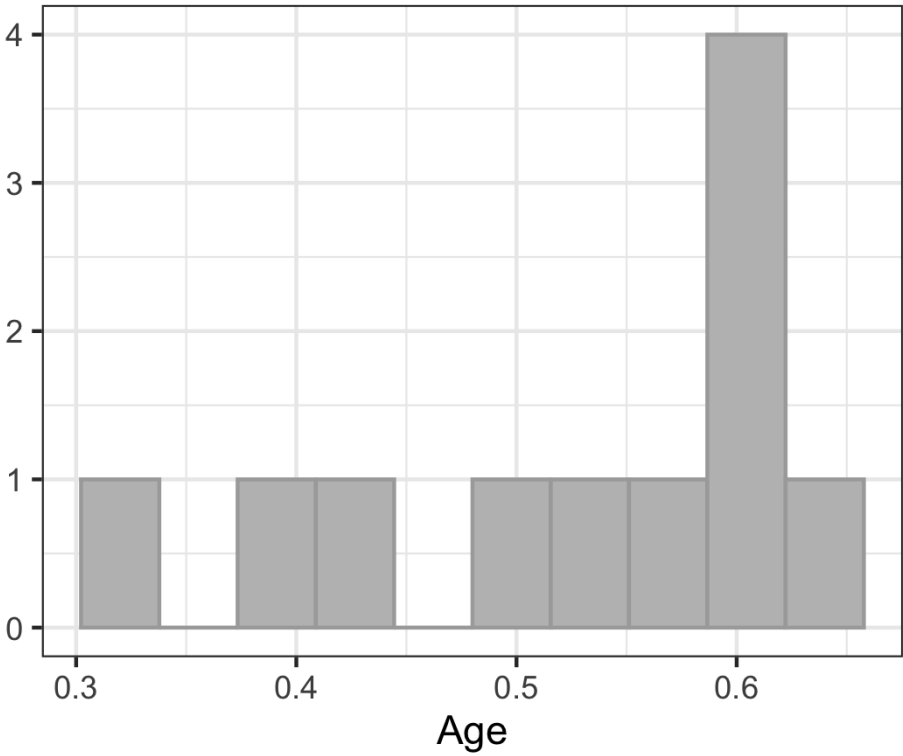
Problem	Part	Solution
1	-	ANOVA is a test for equality of several means. It allows us to compare the means for several groups in one hypothesis test.
2	-	<p>a. An F-distribution is right skewed. A t-distribution is bell-shaped.</p> <p>b. The values of F are never negative. The values of t can be positive or negative.</p> <p>c. The P-value for the ANOVA test is always the area in the right tail in an F-distribution. We will</p>



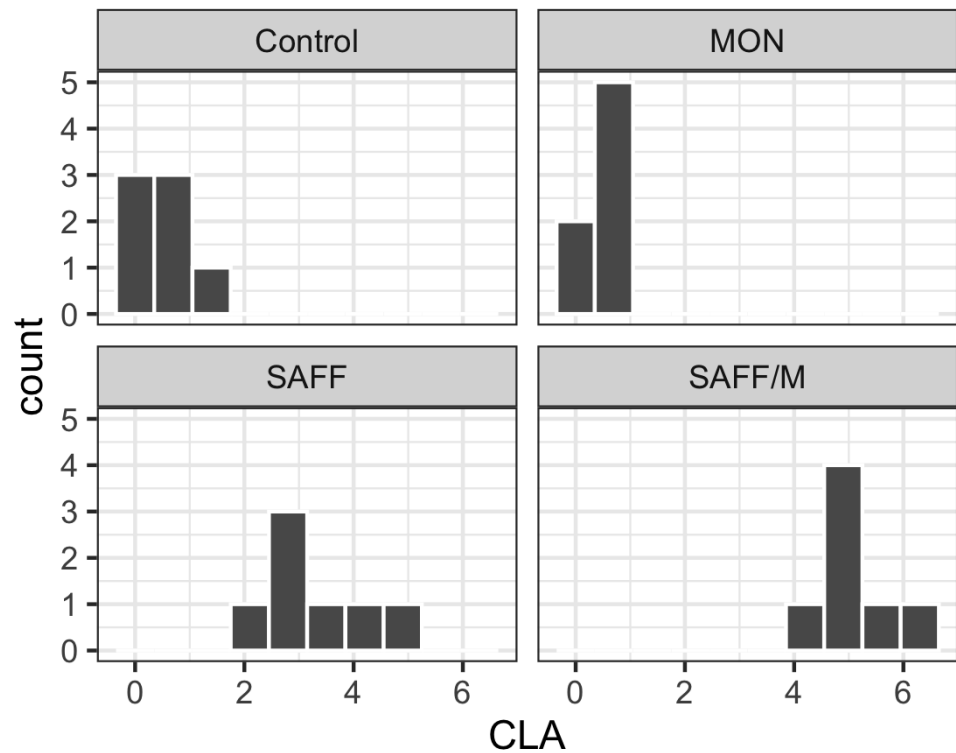
3	-	
4	-	<p>Elderly Females: $n = 11$, mean = 0.528, Std. Dev. = 0.112</p> <p>Young Females: $n = 10$, mean = 0.645, Std. Dev. = 0.099</p> <p>Elderly Males: $n = 8$, mean = 0.654, Std. Dev. = 0.092</p> <p>Young Males: $n = 9$, mean = 0.558, Std. Dev. = 0.145</p>
5	-	ANOVA

Problem	Part	Solution
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6 - Yes, the requirements are satisfied. The requirements that were checked were the following:
 -The observations are normally distributed within each group. This was checked by creating Q-Q plots



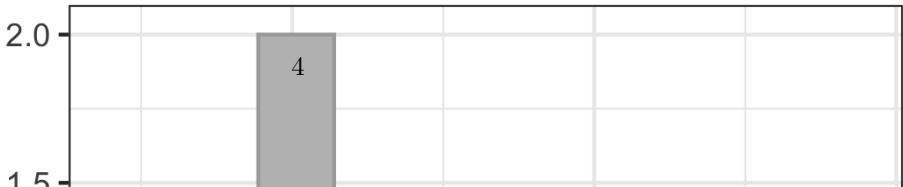
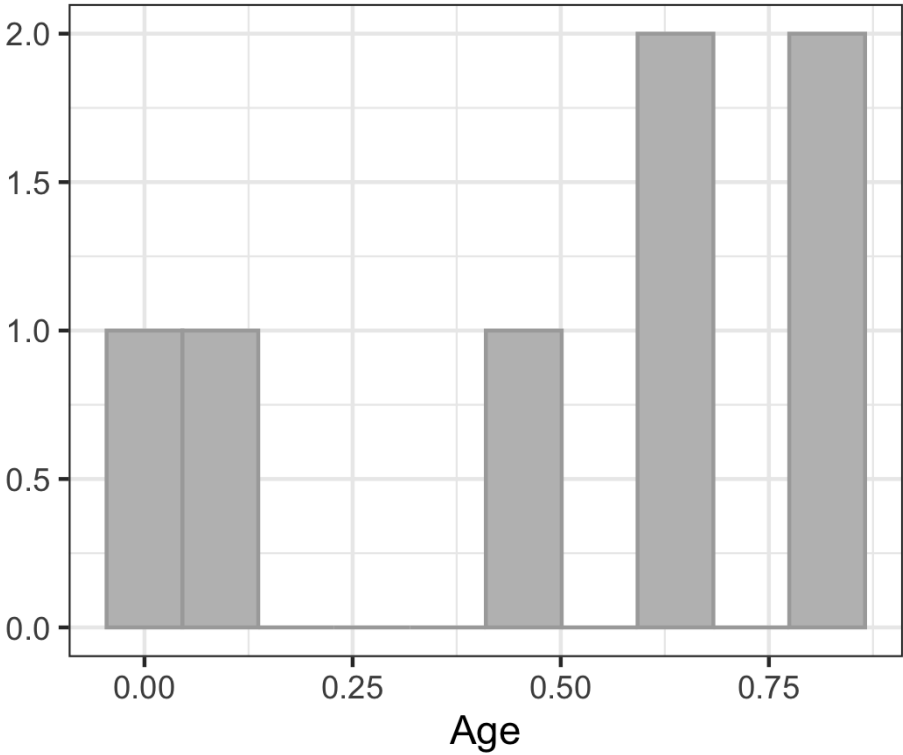
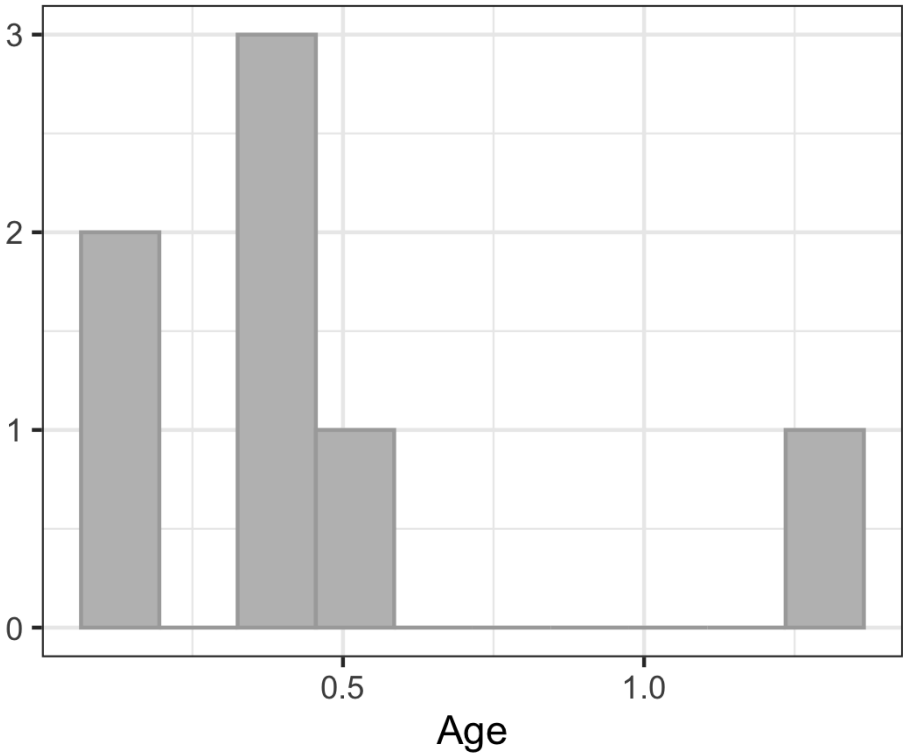
Problem	Part	Solution
7	-	H_0 : All the means are equal H_a : At least one of the means differs
8	-	$F = 2.932$ $df = 3$ and 34
9	-	P-value = 0.047
10	-	P-value = 0.047 < 0.05 = α
11	-	reject the null hypothesis There is sufficient evidence to suggest that there is a difference in the mean protein requirements of the individuals in the four groups.



12	-	Control: $n = 7$, mean = 0.453, Std. Dev. = 0.391
13	-	MON: $n = 7$, mean = 0.521, Std. Dev. = 0.325
		SAFF: $n = 7$, mean = 3.363, Std. Dev. = 0.774
		SAFF/MON: $n = 7$, mean = 5.151, Std. Dev. = 0.729

Problem	Part	Solution
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14 - No, not all of the requirements are satisfied. The requirements that were checked were the following:
-The observations are normally distributed within each group. This was checked by creating Q-Q plots



Problem	Part	Solution
15	-	H_0 : All the means are equal H_a : At least one of the means differs
16	-	F = 106.217 df = 3 and 24
17	-	P-value = 0
18	-	P-value = 0 < 0.05 = α reject the null hypothesis
19	-	There is sufficient evidence to suggest that there is a difference in the mean CLA content in milk fat for at least one of the four diets.
20	-	It would be worth figuring out which of the diets produced the highest CLA content and then possibly encouraging the use of that diet more than the others.