60080079 Introduction to Statistical Methods
Semester 2 2023-2024
Solutions 8

1. PART I: Write your answer as a three-digit number. 141
PART II: Write your answer as a single-digit number. 3
PART III: Write your answer as a two-digit number. 21

a. Combining 457/1003 to 437/620, the pooled estimate is 0.550832, and the SE of the difference is 0.0254.
b. Table is below. We "cannot" use the χ^2-test because it is a one-sided alternative.

	First	Second	Total
Fed	457	437	894
Not Fed	546	183	729
Total	1003	620	1623

c. The estimates are 0.4556 and 0.7048. The SE of the difference is 0.0241. The 95% interval (Second-First) is 0.2019 to 0.2965.

2. PART I: Write your answer as a single-digit number. 1
PART II: Write your answer as a two-digit number. 34

2.1. Following table gives expected values.

	<40	>40	Total
Term	40.5076	57.4924	94
Not	560.4924	795.5076	1350
Total	601	843	1444

2.2. The table gives the terms in the χ^2 statistic. The value of the statistic is 27.1009 and $df = (2-1)\times(2-1) = 1$. The p-value is essentially 0.

	<40	>40	Total
Term	14.8274	10.4470	25.2743
Not	1.0716	0.7550	1.8266
Total	15.8990	11.2020	27.1009

3. PART I: Write your answer as a three-digit number. 151
PART II: Write your answer as a two-digit number. 25

4. PART I: Write your answer as a four-digit number. 5236
PART II: Write your answer as a two-digit number. 24

major * loan Crosstabulation

Count

		loan		
		no	yes	Total
major	Agr	35	32	67
	Chd	50	37	87
	Eng	137	98	235
	LAE	124	89	213
	Mgt	51	24	75
	Sci	29	31	60
	Tec	71	57	128
Total		497	368	865

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.525[a]	6	.367
Likelihood Ratio	6.596	6	.360
N of Valid Cases	865		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 25.53.