

### Lab #4: Exam 1 Review Key

- 1) RQ#1: Does loud music affect hearing?  
RQ#2: Is age related to hearing?  
RQ#3: Does the effect of loud music on hearing depend on age?  
Operational Definitions  
Loud music is 90 decibels (db) sustained for 1 hour.  
Hearing is ability to hear 10 db tone played through headphones.  
Age: Old=50+, Young≤50.  
IV<sub>1</sub> = Music, has 2 levels (Experimental = 90 db for 1 hr, Control = 20 db for 1 hr.)  
IV<sub>2</sub> = Age (ex post facto), has 2 levels (old & young).  
DV=hearing.  
EV's=subject & experimenter expectations, prior exposure to loud noises.  
If both IVs are between groups there would be 2x2=4 groups.  
If Music is treated as within groups then there would be 2 groups (young & old).
- 2) Retrospective looks at past events, while Longitudinal follows events as they occur.
- 3) Probability ( $p$ ) - refers to how likely something is to occur (range from 0 to 1).  
Alpha level ( $\alpha$ ) - arbitrary level chosen to separate probable from improbable.
- 4) a. ordinal  
b. nominal  
c. ratio  
d. interval  
e. ratio  
f. nominal  
g. ordinal

5)

Scale	Properties
Nominal or Categorical	None
Ordinal or Rank	Magnitude
Interval	Magnitude, Equal Intervals
Ratio	Magnitude, Equal Intervals, & Absolute 0

- 6) 

	<u>Rounded</u>	<u>Exact Limits</u>
a.	37.00	36.995-37.005
b.	2.37	2.365-2.375
c.	3.44	3.435-3.445
d.	729.56	729.555-729.565
e.	32.28	32.275-32.285
f.	29.00	28.995-29.005
g.	56.00	55.995-56.005

7) If the limits of summation are from, for example,  $i=3$  to 9, you would add the scores for subjects three through nine (i.e.,  $X_3 + X_4 + X_5 + X_6 + X_7 + X_8 + X_9$ ).

8)

<b>X</b>	<b>f</b>	<b>p</b>	<b>%</b>	<b>Cf</b>	<b>Cp</b>	<b>C%</b>
9	2	.17	17	N=12	1.00	100
8	1	.08	8	10	.83	83
7	3	.25	25	9	.75	75
6	1	.08	8	6	.50	50
5	1	.08	8	5	.42	42
4	1	.08	8	4	.33	33
3	0	.00	0	3	.25	25
2	2	.17	17	3	.25	25
1	1	.08	8	1	.08	8
	<b>N=12</b>	<b>Σ=.99</b>	<b>Σ=99</b>			

9)

$$\text{Range} = X_H - X_L + 1 = 38 - 6 + 1 = 33$$

#Groups =  $\frac{R}{i}$ , and should be between 10 and 20, so

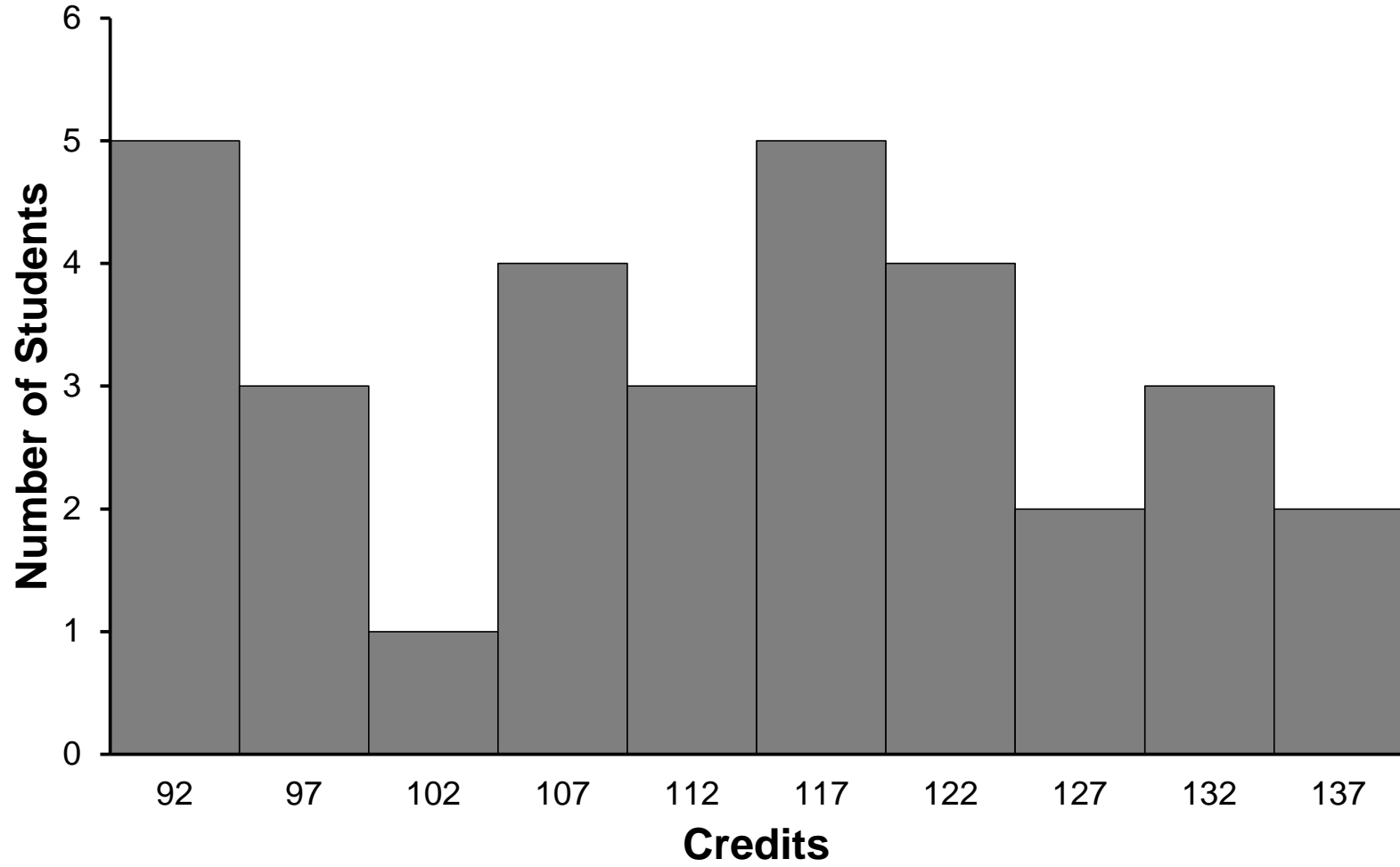
$$\frac{33}{7} = 4.71, \quad \frac{33}{5} = 6.6, \quad \text{and} \quad \frac{33}{3} = 11$$

Thus, we will use  $i=3$  and 6 will be  $X_L$  (because it is divisible by 3).

<b>Int.</b>	<b>E. Limits</b>	<b>Midpt</b>	<b>f</b>	<b>p</b>	<b>%</b>	<b>Cf</b>	<b>Cp</b>	<b>C%</b>
36-38	35.5-38.5	37	1	.062	6.2	16	1.000	100
33-35	32.5-35.5	34	1	.062	6.2	15	.938	94
30-32	29.5-32.5	31	1	.062	6.2	14	.875	88
27-29	26.5-29.5	28	1	.062	6.2	13	.812	81
24-26	23.5-26.5	25	2	.125	12.5	12	.750	75
21-23	20.5-23.5	22	1	.062	6.2	10	.625	62
18-20	17.5-20.5	19	1	.062	6.2	9	.562	56
15-17	14.5-17.5	16	1	.062	6.2	8	.500	50
12-14	11.5-14.5	13	3	.188	18.8	7	.438	44
9-11	8.5-11.5	10	2	.125	12.5	4	.250	25
6-8	5.5-8.5	7	2	.125	12.5	2	.125	12
			<b>N=16</b>	<b>Σ=.999</b>	<b>Σ=99.7</b>			

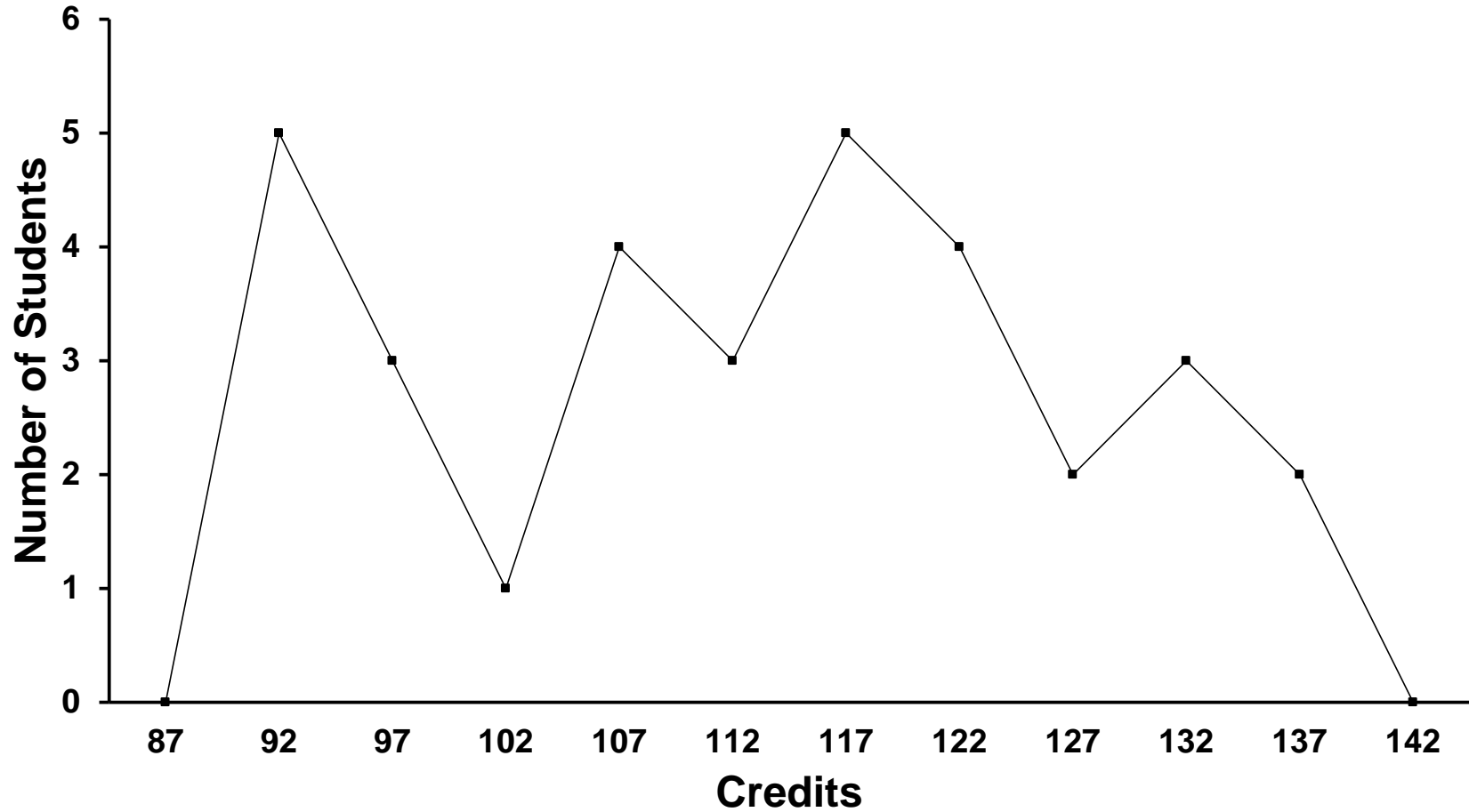
10) a. Histogram

**Number of Credits Completed by Students in the Class**



10) b. Frequency Polygon

### Number of Credits Completed by Students in the Class



11) Bar Graph

## UWSP Undergraduates Who Live Off Campus

