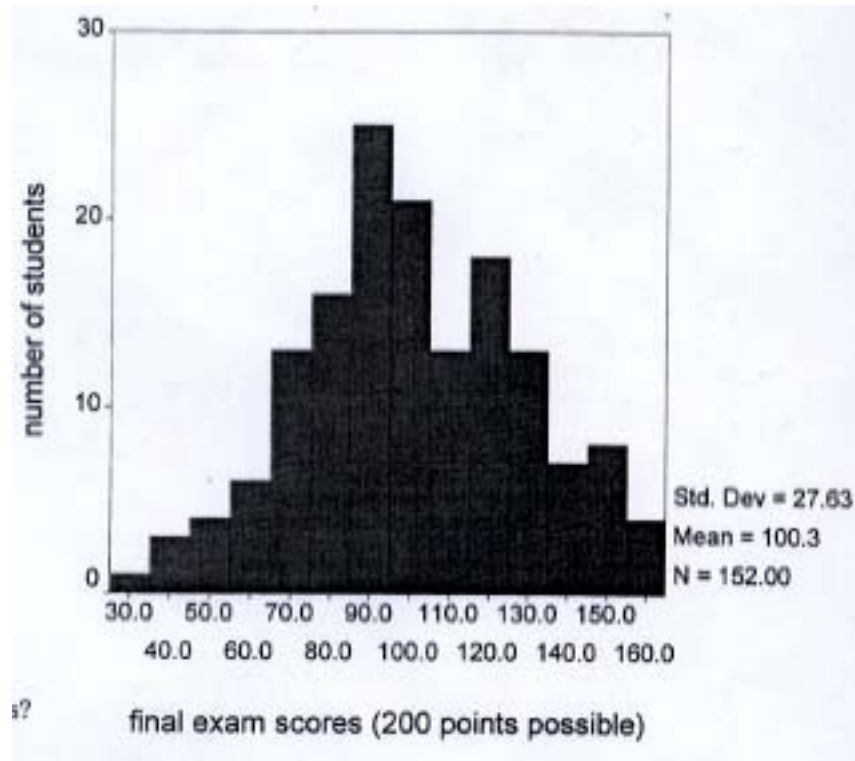


Introductory Statistics – A Self-Assessment Test

Descriptive statistics on one variable

1. A class of 160 sociology students took a final exam, and the following graph shows the results of those who finished the test. What is this kind of graph called?

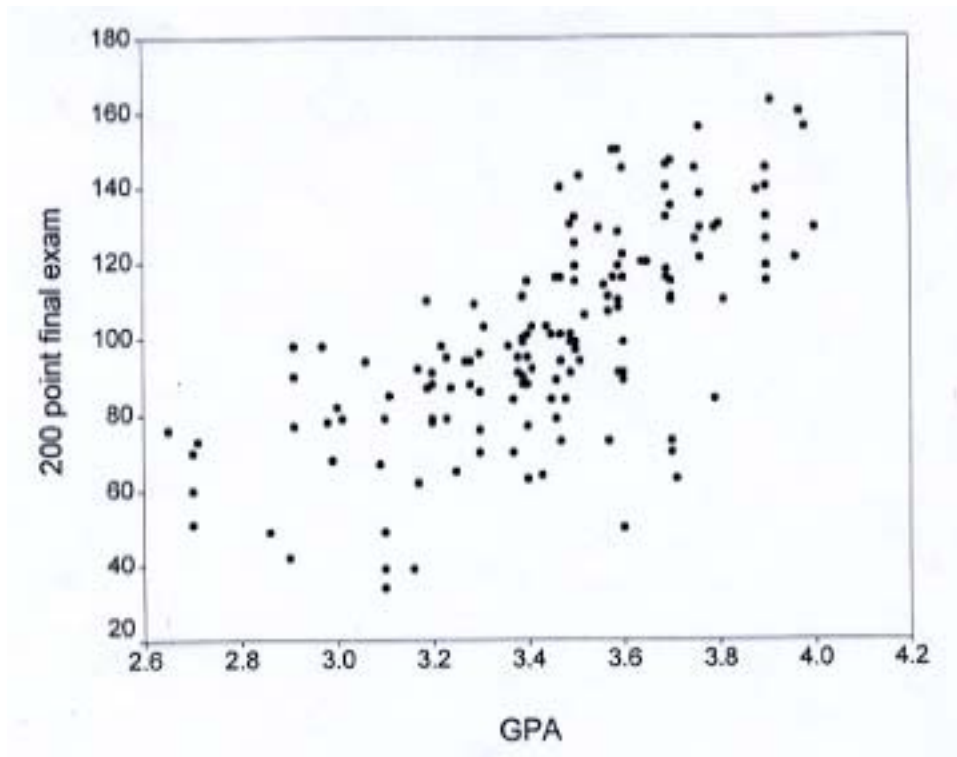


2. What do the heights of the bars represent in this graph?
3. What does $N=152$ mean?
4. What was the mode on this test?
5. What shape does the distribution of this variable have (approximately)?
6. The mean of all these final exam scores is 100.3. How was this number calculated?
7. What does the mean tell us about this set of scores?
8. What does the abbreviation Std. Dev. stand for?

9. In this example, what does the 27.63 tell us about these scores?
10. What is the approximate range of these scores?

Relationships between two variables

11. The following graph shows the relationship between the final exam scores of these sociology students and their overall GPAs. What is this kind of graph called?



12. What does each dot on the graph represent?
13. What type of relationship exists between final exam scores and GPA?
14. Suppose you made a graph showing the final exam scores and the students' heights in inches. We can safely assume these variables should be unrelated to each other. Describe or sketch approximately what this graph would look like.

15. What statistic quantifies (turns into a single number) the relationship between variables like these?

Inferential Statistics

16. What is the difference between a population and a sample?

17. Suppose you wanted to see if men scored differently than women on the final exam in this sociology class. What kind of statistical analysis would you run?

18. The results of an appropriate analysis are shown below. What null hypothesis is being tested?

Group Statistics

		sex	N	Mean	Std. Deviation	Std. Error Mean
200 point final exam		male	56	104.5000	25.6146	3.4229
		female	86	100.4651	27.4414	2.9591

	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Equal variances assumed	.879	140	.381	4.0349	4.5913	-5.0424	13.1122
Equal variances not assumed	.892	123.349	.374	4.0349	4.5246	-4.9211	12.9909

19. In this analysis, what part does the “t” value play?

20. What part does the “Sig. (2-tailed)” play?

21. What conclusions could you draw about the difference between men’s and women’s scores?

22. If you wanted to estimate the mean of all the college women who have taken this test, what would be the best point estimate to use?

23. If you were told that the 95% Confidence Interval for the women’s mean was $94.48 < \mu < 106.45$, what would this indicate?

24. Suppose you wanted to know if there was a relationship between sex (male or female) and whether students had a high school sociology course (yes or no). You make up a table such as the following. What is the size of the sample?
25. What does the number 48 mean in the center of the table?

sex * high school sociology Crosstabulation

Count

		high school sociology		Total
		no	yes	
sex	male	34	22	56
	female	39	48	87
Total		73	70	143

26. If the chi-square statistic for these data turned out to be 3.44 and the significance, .064, what conclusion would you draw?