

GMAT Analysis Report

GMAT Dataset:

<i>Freshman</i>	<i>Sophomore</i>	<i>Junior</i>	<i>Senior</i>
1.91	3.89	3.01	3.32
2.14	2.02	2.89	2.45
3.47	2.96	3.45	3.81
2.19	3.32	3.67	3.02
2.71	2.29	3.33	3.01
3.25	2.82	3.10	3.17
3.62	3.11	3.11	3.10
2.22	1.75	3.20	1.85
3.98	3.20	2.73	2.36

Problem Definition –

Determine the grade point averages of 36 business students and ANOVA test.

Hypothesis –

$$H_0: \mu_1 = \mu_2 = \mu_3 = \mu_4$$

H_1 : at least two means differ

Decision Rule –

If the critical ratio is greater than the critical value of 4.51 reject the null.

Test –

Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Factor	3	0.7074	0.2358	0.64	0.594
Error	32	11.7612	0.3675		
Total	35	12.4686			

Means

Factor	N	Mean	StDev	99% CI
Freshman	9	2.832	0.762	(2.279, 3.386)
Sophomore	9	2.818	0.681	(2.264, 3.371)
Junior	9	3.1656	0.2874	(2.6122, 3.7190)
Senior	9	2.899	0.585	(2.345, 3.452)

Pooled StDev = 0.606249

Conclusion –

- 1) The F critical ratio of .64 is less than the critical value of 4.51 so we fail to reject the null.
- 2) The pvalue of .594 is greater than .01 alpha level so we fail to reject the null.
- 3) There is a chance that a T2 beta error has been made.

Interpretation –

There is no significant difference between the grade point averages.

Assumptions -

The four graph medians fall almost at the center at the center of the midspread along with the sample mean and hypothesized mean. The whiskers at either end of the plot indicate the distribution is skewed to the positive, negative, positive and negative in that order.

