MA4505 – Correlation – Worked Example with R

- First we create the data, and then run the procedure.

```
Int=c(2.1,5.0,9.0,12.6,17.3,21.0,24.7)
Conc=c(0,2,4,6,8,10,12)

cor.test(Int,Conc)
```

- This is the resulting output

```
> cor.test(Int,Conc)

        Pearson's product-moment correlation

data:  Int and Conc
t = 47.1967, df = 5, p-value = 8.066e-08
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
 0.9920730 0.9998421
sample estimates:
      cor
0.9988796
```

Remark upon the following outputs:

- The correlation coefficient: **0.9988796**
- The 95% confidence interval for the correlation coefficient estimate: **(0.9920730,0.9998421)**
- The Null Hypothesis is that true correlation between the population of values for both variables is not equal to 0.
- The Alternative Hypothesis is that the true correlation is not equal to zero.
- The p-value is **8.066e-08**
- This is a **highly significant result.**
- Conclusion - We reject the null hypothesis