

# Introduction to R

## Correlation, linear regression and basic plotting

R-peer-group

QUB

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Data for today's session can be downloaded from:  
<http://diversityinlife.weebly.com/r-peer-grp.html>



- \* One of the key benefits of using R for analyses is the ability to automate processes
- \* Generally, when comparing the means of two groups, you need to test for normality, variance quivalence and sample size equivalence
- \* In the folder “S3Ttest” you will find an R script named “DIYt-test.R”. This script file contains a function which will automatically assess your data and decide whether to do a `t.test` or a `wilcox.test`.

## Usage

```
DIYt.test(Data = lakeData, groups = c("yr1", "yr3"),  
          alternative = "less", mu = NULL,  
          data.structure = "columns",  
          test.type = "paired")
```



<code>Data</code>	A data.frame or numeric vector containing the test data
<code>groups</code>	A character argument define variable column names when data in in structure columns
<code>alternative</code>	Identical to the argument of the same name used in <code>t.test</code> or <code>wilcox.test</code>
<code>mu</code>	Identical to the argument of the same name used in <code>t.test</code> or <code>wilcox.test</code>
<code>data.structure</code>	An argument indicating whether group values are seperated into “columns” or by a “factor” variable
<code>test.type</code>	An argument defining whether the test to be carried out is “paired”, “1sample” or “2sample”



*“The invalid assumption that correlation implies causation is probably among the two or three most serious and common errors of human reasoning”*

**Stephen Jay Gould**



*“In the space of 126 years, the Lower Mississippi has shortened itself 242 miles. This is an average of a trifle over one mile and a third per year. Therefore ... any person can see that seven hundred and forty-two years from now the Lower Mississippi will be only a mile and three-quarter long ...”*

**Mark Twain**

Life on the Mississippi