# DAY 5

## Session II: ANOVA

#### Calculations involved in ANOVA

The data come from a simple growth room experiment, in which the response variable is growth (mm) and the categorical explanatory variable is a factor called Photoperiod with 4 levels: Very short, Short, Long and Very long daily exposure to light. There were 6 replicates of each treatment:

|  |  |  |  |
| --- | --- | --- | --- |
| V short | Short | Long | V. long |
| 2 | 3 | 3 | 4 |
| 3 | 4 | 5 | 6 |
| 1 | 2 | 1 | 2 |
| 1 | 1 | 2 | 2 |
| 2 | 2 | 2 | 2 |
| 1 | 1 | 2 | 3 |

Fill the ANOVA table below







|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Source | SS | d.f. | MS | F |
| Photoperiod |  |  |  |  |
| Error |  |  |  |  |
| Total |  |  |  |  |

**Two way ANOVA deskwork**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Genotype** | **V short** | **Short** | **Long** | **V. long** |
| A | 2 | 3 | 3 | 4 |
| B | 3 | 4 | 5 | 6 |
| C | 1 | 2 | 1 | 2 |
| D | 1 | 1 | 2 | 2 |
| E | 2 | 2 | 2 | 2 |
| F | 1 | 1 | 2 | 3 |

The following data was obtained after exposing guinea pigs of two 2 levels of coat colour (light and dark) to different levels of diet and light. There are 3 levels of diet (A, B and C), and 2 replicates each were measured. Create an excel file with this data

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Diet** | | |
|  | **A** | **B** | **C** |
| Light 1 | 6.6 | 6.9 | 7.9 |
| Light 2 | 7.2 | 8.3 | 9.2 |
| Dark1 | 8.3 | 8.1 | 9.1 |
| Dark 2 | 8.7 | 8.5 | 9 |