

## Tutorial Questions – Statistical Inference Part 2

You will require the following 3 datasets to complete your analysis **primary\_school**, **psychotherapy** and **mercury**.

Each of the files contains data that requires analysis: use the Statistical Inference 2 notes to determine the appropriate methodology, apply the test, perform post-hoc tests (if necessary) and interpret the output.

You must write a **short summary of your findings** for each question, including your reasoning for the test and its assumptions and the output achieved.

### 1. PRIMARY SCHOOL

A random sample of 25 ten year olds were taken from primary schools in each of Scotland, England, Northern Ireland and Wales, and their height was then measured in inches. Choose the appropriate method of analysis to determine if there were significant differences between the heights of 10 year olds in each country, and if so which countries were significantly different from which?

### 2. COUNSELLING THERAPY

In counselling and psychotherapy of subjects, the beneficial effects of pre-therapy training have been discussed. Four different approaches to pre-therapy training are (a) control (no training), (b) therapeutic reading (TR), which involves indirect learning, (c) vicarious therapy pretraining (VTP), which involves videotaped vicarious learning, and (d) group, role induction interview (RII), which involves direct learning. It is useful to compare the effectiveness of these approaches on the response variable, psychotherapeutic attraction, which is assigned a score between 0 and 40. Are there significant differences in the level effectiveness of approach? If so, which approach is the best and which is the worst?

### 3. MERCURY POLLUTION

An ecologist wishes to assess the level of mercury contamination in five different rivers. To achieve this he catches thirty fish from each river, and measures their level of mercury concentration. Are there significant differences in the level of pollution? If so, which rivers are the worst and least effected?