CSIRO Statistical Training Proposal

This workshop is an introduction to statistics with R. Statistical concepts will be supplemented with R code so that participants can adapt and apply to learn statistics interactively. There will be minimal mathematics. The theory of statistical methods will not be discussed in detail. Participants are expected to be familiar with R, tidyverse and basic numerical and graphical summaries (e.g. mean, standard deviation, boxplot, and histogram).

# Content

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| Topic | Learning objectives |
| Parametric distributions to describe and simulate data | * Bernoulli and Binomial distributions * Normal distribution * t-distribution * Simulating data * Central limit theorem |
| Introduction to statistical inference | * t-test * P-value * Confidence interval * Statistical significance |
| Simple linear regression | * Scatter plot * Correlation coefficient * Least squares estimate * Model diagnostics * Transformation |
| Modelling with continuous responses | * Symbolic model formulae * F-test * More model diagnostics * Model interpretation |
| Modelling with categorical predictors | * Dummy variables * Constraints and contrasts * Interpretation for categorical predictors |
| Modelling with categorical response | * Logistic regression * Relative risk and odds ratio * Chi-square test |

# Schedule

This workshop will be delivered online (via Zoom) across 3 half days on 18th – 20th November 2024. Participants are required to connect to the workshop via Zoom on their own devices.

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| **Day** | **Time** | **Topic** |
| Mon 02/12/2024 | 11.00am-12.30pm | Parametric distributions to describe and simulate data |
| Mon 02/12/2024 | 12.30pm-1.30pm | *Break (1 hour)* |
| Mon 02/12/2024 | 1.30pm-3.00pm | Introduction to statistical inference |
| Mon 02/12/2024 | 3.00pm-3.15pm | *Break (15 minutes)* |
| Mon 02/12/2024 | 3.15pm-4.45pm | Simple linear regression |
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| Tue 03/12/2024 | 11.00am-12.30am | Modelling with continuous responses |
| Tue 03/12/2024 | 12.30pm-1.30pm | *Break (1 hour)* |
| Tue 03/12/2024 | 1.30pm-3.00pm | Modelling with categorical predictors |
| Tue 03/12/2024 | 3.00pm-3.15pm | *Break (15 minutes)* |
| Tue 03/12/2024 | 3.15pm-4.45pm | Modelling with categorical response |

# Proposed Costing

$725 per external person say, so for 20, $14,500.

Maximum of 20 participants. Would like a minimum of 5 participants to proceed.