

DRAFT

Training School Programme, April 2022

Session	Time	Session Title and Content
Tuesday 26 April		Basic Principles
	9.00-9.15	Registration
1	09.15-09.55	Introduction to course: The Three Rs, legal and ethical aspects of Experimental Design.
2	09.55-10.40	Quiz 1
3	10.40-11.25	Principles of experimental design: types of experiment (pilot, exploratory, confirmatory), objectives, controls, experimental units, replication, randomization, blinding.
	11.25-11.45	BREAK
4	11.45-12.30	Common failings: unclear objectives, bias, lack of power, failure to randomize/blind, pseudoreplication. Costs of poor design.
5	12.30-13.30	Group Exercise 1: Controls, experimental units.
	13.30-14.30	LUNCH
6	14.30-15.15	Basic statistical inference: null and alternative hypotheses, SD vs. SE, outliers, type I & type II errors, variables affecting significance, summary statistics.
7	15.15-16.00	Sources of variability: in animal studies and how they may be controlled. Need for better design.
	16.00-16.20	BREAK
8	16.20-17.10	Importance of controlling variability: simulating experiments and the importance of controlling variability. Randomisation, sampling, Type 1 and Type 2 errors.
	18.30-21.30	SOCIAL EVENT AND DINNER
Wednesday 27 April		Experimental Designs and Statistical Analysis
9	09.00-09.45	The analysis of variance: interactions, post-hoc tests, assumptions, data transformations.
10	09.45-10.30	Group Exercise 2: Finding basic faults.
	10.30-11.00	BREAK
11	11.00-11.45	Different designs: completely randomised, randomised block and latin square designs. Power calculations, resource equation.
12	11.45-12.30	Non-continuous data: qualitative data, contingency tables, non-parametric tests.
	12.30-13.30	LUNCH
13	13.30-14.15	Factorial designs
14	14.15-15.00	Group Exercise 3: Choosing the right design & over-night exercise.
	15.00-15.30	BREAK
15	15.30-16.15	Experiments to test relationship: correlation, regression.
16	16.15-17.15	Tools and software: power analysis, EDA and the pros and cons of software.
	18.30-21.30	DINNER
Thursday 28 April		Applied Experimental Design and Important Design Messages

17	09.00-09.45	Discussion of overnight exercise. Presentation and planning: presenting results and planning an experimental programme.
18	09.45-10.45	Quiz 2 and discussion.
	10.45-11.15	BREAK
19	11.15-12.00	Ethics by design: Writing an experimental protocol, ethical review & 3Rs
20	12.00-12.45	Searching and resources: searching for information on Rs and 3Rs resources
	12.45-13.45	LUNCH
21	13.45-14.00	Answers to Quiz 2 & take-home messages.
22	14.00-15.00	Ask the experts: opportunity for participants to discuss any unresolved design problems with the tutors
23	15.05-16.05	FELASA Examination