

Training School Programme, Saskatoon 2017

Session	Time	Session Title and Content
Wednesday 31 May		Basic Principles
	09.00-09.30	Registration – Agriculture building foyer
1	09.30-10.15	Introduction to course: The Three Rs, legal and ethical aspects. Quiz 1.
2	10.15-11.00	Principles of experimental design. Need for better design. Types of experiment (pilot, exploratory, confirmatory), objectives, controls, experimental units, replication, randomization, blinding.
	11.00-11.30	BREAK
3	11.30-12.15	Common failings: unclear objectives, bias, lack of power, failure to randomize/blind, pseudoreplication. Costs of poor design.
4	12.15-13.00	Group Exercise 1: Objectives, controls, experimental units.
	13.00-14.00	LUNCH
5	14.00-14.45	Revision of basic statistical inference. Null and alternative hypotheses, SD vs. SE, outliers, type I & type II errors, variables affecting significance, summary statistics.
6	14.45-15.30	Sources of variability in animal studies and how they may be controlled.
	15.30-16.00	BREAK
7	16.00-17.30	Computer session: Simulating experiments and the importance of controlling variability. Randomisation, sampling, Type 1 and Type 2 errors
		CLOSE
Thursday 1 June		Experimental Designs and Statistical Analysis
8	09.00-09.45	The analysis of variance, interactions, post-hoc tests, assumptions, data transformations.
9	09.45-10.30	Group Exercise 2: Finding basic faults.
	10.30-11.00	BREAK
10	11.00-11.45	Completely randomised, randomised block and latin square designs. Power calculations, resource equation.
11	11.45-12.30	Qualitative data, contingency tables, non-parametric tests.
	12.30-13.30	LUNCH

12	13.30-14.15	<i>Factorial “designs”.</i>
13	14.15-15.00	Group Exercise 3: <i>Choosing the right design & over-night exercise.</i>
	15.00-15.30	BREAK
14	15.30-16.15	<i>Experiments to test relationship: correlation, regression.</i>
15	16.15-17.30	Computer session: <i>ANOVA, power analysis and software.</i>
	17.30-22.00	SOCIAL EVENT & DINNER – Wanuskewin Heritage Park
Friday 2 June		Applied Experimental Design and Presentation for Publication
16	09.00-09.45	<i>Discussion of overnight exercise: Planning an experimental programme.</i>
17	09.45-10.30	<i>Presentation of results: The ARRIVE guidelines, summary statistics, graphs, diagrams, tables.</i>
	10.30-11.00	BREAK
18	11.00-11.45	<i>Quiz 2 and discussion</i>
19	11.45-12.30	Parallel Session 1: Group Exercise 4: <i>Write an experimental protocol in your field that would meet the ARRIVE Guidelines</i> Discussion of participants’ problems
	12.30-13.30	LUNCH
20	13.30-14.45	Parallel Session 2: Group Exercise 4 (cont). Discussion of participants’ problems
21	14.45-15.00	<i>Answers to Quiz 2 & take home messages.</i>
		CLOSE