

Experiments

CREDIT: The questions on this document were written by Erik Packard, PhD, Associate Professor of Mathematics at Colorado Mesa University.

- Problem 3
 - What are the best chocolate chip cookies? We will do an experiment and make batches of cookies different ways. We will use either butter or margarine, either of three brands (A, B, or C) of chocolate chip cookies, and either cook them at 325 °F or 350 °F. We want 6 batches for each combination.
 - A) List all of the treatments.
 - B) How many batches are to be made?
 - C) Give an outline for a completely randomized design.

- Problem 7
 - A group of 20 individuals is available to do an experiment to see if there is any difference between a generic drug and the “reference” drug it is designed to imitate. We are interested to see if there is any difference in the absorption into the blood. Give an outline of a matched-pairs design for such an experiment.

- Problem 11
 - A sports therapist has come up with a new injury prevention program. The program takes only 10 minutes per day. We wish to perform an experiment on a group of track runners to see if the new program works. However, we feel that it may have different results on sprinters and distance runners, so a block-design is called for. We have available 40 distance runners and 50 sprinters. Give an outline for the experiment’s design.