

Introduction to Bayesian Methods

Duration 1 day
(GEN0-2)

Pre-requisite

A knowledge of basic statistical methods (e.g. probability distributions, summary measures, variability, confidence intervals).

Course Summary

This one day course gives those unfamiliar with Bayesian methods the insight and confidence to decide whether Bayesian analysis could add something to their current data analysis methods. It acts as a refresher to those who may have seen this material in papers or at University but assumes no previous knowledge of Bayes Theorem.

The concepts of the methods and statistical interpretation of the outputs are given, together with practical examples of where this could be applied and a comparison to the usual classical techniques to show where it differs. Although the course is not software based, there are practical workshops to ensure the concepts are understood and the material remains engaging.

The workshop allows time to discuss typical statistics software packages used for Bayesian analysis and group discussions. At the end of the workshop, participants should have a good understanding of how Bayesian methods work and could be applied, in order that they can work with statisticians to ask the right questions and understand any outputs. (As specialist software is generally required and a thorough understanding of the statistical methods involved, this course does not teach how to carry out the analyses directly, although pointers are given.)

Software

None required for workshop

Flexibility

We can customise the module content or length of the course (level of detail) to meet specific requirements and for your industry.

Course Content

- Introduction to Bayesian ideas & what they can offer
 - What is Bayes theorem and what are Bayesian methods used for?
 - What is a prior?
 - What does the posterior look like?
 - Comparison with classical (frequentist) methods

- What do you need to know about Priors?
 - The controversy of informative vs non-informative Priors
 - What distributions can we use?
 - How could I construct a Prior?
- What is a Posterior?
 - Effective sample size
 - Impact of Priors on the Results
 - How do I communicate my results in a Bayesian analysis?
- Bayesian as a tool for decision-making
 - How can we improve decision making using Bayesian methods?
 - Study Success
 - Was the analysis suitable?
- Practicalities of running a Bayesian approach
 - Types of models
 - The simulation approach
 - Checks for convergence
 - Software to analyse Bayesian designs
 - Example: A practical application
- Conclusions & Discussion

For further information and pricing contact:
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