Why resampling; common types of resampling methods; Jackknife, Bootstrap, Jackknife after Bootstrap; problems in which they tend to be used.

Trial illustrative hands-on examples to assess usefulness and advantages and disadvantages over normative plug-in methods.

Using the Bootstrap for a) approximating sampling distributions; b) estimating bias; c) approximating percentiles of pivots; d) forming confidence intervals; e) testing hypotheses; f) model fitting; g) variable selection; h) classification.

Good and bad properties of the canonical bootstrap; what the bootstrap is known to be able to do; what the bootstrap is known to be unable to do; consistency of the bootstrap and second order accuracy.

Unorthodox Bootstraps, such as $m$ out of $n$ bootstrap; when are they needed; block bootstrap for dependent data; choice of block length.

Use and impact of Bootstrap in emerging applications; dependent data; econometrics; astronomy; microarray; hard population biology.

Diagnosing Bootstrap success in a specific problem; possibility of such an enterprise.

Tukey’s Jackknife; its original motivation; Jackknife as a default bias reducer.

Jackknife variance estimate; Jackknife for estimating sampling distributions; Jackknife histograms.

Properties of the canonical Jackknife.

What the Jackknife is known to be unable to do; modifications of the canonical Jackknife.

Bootstrap or Jackknife?

Principal references : Books and articles by, among others, Brad Efron and Robert Tibshirani, Anthony Davison and David Hinkley, Peter Hall, Jun Shao, Peter Bickel, Peter Bickel and David Freedman, S.N. Lahiri, Dimitris Politis and Michael Wolf, Rudy Beran, G. Alastair Young.