

Course Structure for ROOT and Data Analysis Tutorial

1. Getting Started: ROOT installation, setting environment variables, basic commands, printing & saving canvas
2. Functions: plotting built in functions and user defined functions
3. Histograms: Creating, filling, and plotting 1D, 2D, and Profile histograms. Constant or variable bin width, re-binning. Normalizing histograms. Adding, multiplying, and dividing histograms. Different plotting and display options. Fitting histograms (with pre-defined and user defined functions)
4. Graphs: Creating and drawing 1D and 2D graphs. Graphs with error bars. Graphs with asymmetric error bars. Fitting a graph
5. Saving/Reading histograms and graphs to/from a File
6. Storing/reading data to/from a file. TTuple and TTrees. Reading and writing simple TTrees. TBranch to hold simple variables, arrays, objects. Examples of Tree with a C structure, Tree with an Event class. Reading and writing TTrees with Event Class. Trees in Analysis, Simple analysis using TTree::Draw() with selection using TCut objects. Using TTree::MakeClass and TTree::MakeSelector
7. Using a Macro to Read a TTree, Compiling your Code
8. Basics of RooFit and TMVA (if time permits)