

# INFN School of Statistics 2022



**Sunday, May 15, 2022 - Friday, May 20, 2022**

**Hotel Ariston, Paestum**

## Scientific Program

Probability theory  
Introduction to probability theory  
Distribution functions of random variables  
Conditional probability, Bayes theorem  
Exercise session  
Statistical inference  
Parameter estimates, properties of estimators  
Maximum likelihood method  
Pearson and Neyman chi-squares  
Hypothesis testing and interval estimation  
Hypothesis tests  
Upper limits and significance evaluation  
Treatment of nuisance parameters  
Goodness of fit  
Exercise session  
Seminar  
Experience with statistical analysis of covid data  
Statistical software tools  
Overview of the main statistical tools  
RooFit, RooStats  
Hands-on exercises  
Multivariate analysis  
Introduction to multivariate analysis  
Supervised learning: classification and regression  
Unsupervised learning, etc.  
Hands-on tutorial  
Lecturers:  
Sara Algeri, University of Minnesota  
Glen Cowan, Royal Holloway University of London  
Michael A. Kagan, SLAC, Standord  
Jennifer Ngadiuba, Fermilab  
Mario Pelliccioni, INFN - Torino  
Harrison Prosper, Florida State University  
Gaetano Salina (COVID seminar), INFN - Roma Tor Vergata