Program

Students choose between attending for one week or two weeks. For the first week a student can choose one course from Block 1 and one from Block 2, OR choose the course offered in Block 3. For the second week, students can choose one course from Block 4 and one from Block 5, OR choose the course offered in Block 6. No afternoon sessions will be held on Saturdays. Stata® is the statistical software used in most courses. The Sunday Stata® courses are extra courses, and are independent of courses in other blocks.

June 4			
Stata® Courses 1 (9:00-17:00)			
Basics of Stata®	Meta-analysis with Stata®	Analysis of Prospective Studies using Stata®	Data Visualization with Stata®
June 5 - 10			
Block 1 (8:30-10:30, 14:00-15:30)			
Principles of Biostatistics	Linear Regression for Medical Research	Causal Inference in Epidemiology	
Block 2 (11:00-13:00, 16:00-17:30)			
Principles of Epidemiology	Logistic Regression for Medical Research	Joint Modelling of Longitudinal and Survival Data	
Block 3 (8:30-17:30)			
Statistical Methods for Population Based Cancer Survival Analysis			
June 11			
Stata® Courses 2 (9:00-17:00)			
Basics of Stata®	Epi tables using Stata®	Practical introduction to propensity scores	Multiple Imputation to handle missing data
June 12 – 17			
Block 4 (8:30-10:30, 14:00-15:30)			
Research Methods in Health: Biostatistics	Longitudinal Data Analysis	Applied Epidemiologic Methods: Integrating Diet/Lifestyle and Omics in the Era of Precision Nutrition	
Block 5 (11:00-13:00, 16:00-17:30)			
Research Methods in Health: Epidemiology	Survival Analysis	Mediation Analysis	
Block 6 (8:30-17:30)			
Media analytics and population surveys for public policies			

Registration Fee

The registration fee covers only the course tuition. The final deadline for registration is **24th of May 2023**. Fees depend on: the number of course weeks; the timing of enrollment; and whether the applicant is currently a student at an accredited university, or not.

	Registration up to 29th of January 2023		Registration after 29th of January 2023	
	Student	General	Student	General
1 week	1300€	1500€	1500€	1700€
2 weeks	2400€	2800€	2700€	3100€

Standard fee for Stata® courses is 400€ each, but Summer School students pay a fee of 250€ per course.

A discount of 10% on tuition will be applied to returning students, or to multiple candidates applying simultaneously from the same department or research group. A discount of 20% on tuition will be applied to members of SISMEC, IBS, and IBIG. Discounts are not cumulable.

Scholarships

A limited number of scholarships are available for accredited university students. Students from EU or North America are not eligible for scholarships. Deadline for application is **29th of January 2023**. The decision will be made within a week. Scholarships cover at most half of the tuition cost, and no other expenses. Please see the application form for more information.

Accommodation

Standard lodging expenses in a double room are 152€ per person (course participant only), per day, including all meals and coffee breaks. To ensure you preferred accommodation, we suggest early application. More information can be found in the course application form and in the hotel accommodation form - see the application section of the website.

Summer School Administration

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Summer School on Modern Methods in Biostatistics and Epidemiology

4 June -17 June 2023

CISON DI VALMARINO-TREVISO, ITALY
CASTELLO BRANDOLINI COLOMBAN

The School is held in the Brandolini Colomban castle located in Cison di Valmarino, in the Northeast of Italy.

The School offers introductory and advanced courses in biostatistics and epidemiology, and their applications to clinical and etiology research and public health.

The castle is a conference center with meeting, sporting, recreational and well-being facilities and yet, conducive to study. For more information, visit its homepage www.castelbrando.it.

In collaboration with the Italian Society of Medical Statistics and Clinical Medicine **(SISMEC)**, Italian BIostatistics Group **(IBIG)**, and International Biometric Society **(IBS)**

www.biostatepi.org

SCAN ME

Goals and Rationale

The School offers introductory and advanced courses in medical statistics and epidemiology, and their application to clinical and etiology research and public health.

Modern medical research is becoming increasingly formalized. Today researchers, physicians and health professionals are encouraged to use scientific data, including controlled experiments and well-structured observational data as the source for decision making. Evidence based medicine is entering into many subspecialties, including public health science.

This School provides participants insight into available analytical tools for planning research, handling data and interpreting results. Better understanding of scientific medical papers is also a goal and it requires not only knowledge of the topic being investigated but also an understanding of the research methods being used.

Week-long, Full-day Courses

Social media analytics and population surveys for public policies – E. Savoia and F. Zollo

The course aims at providing an overview of the information ecosystem including communication theories and data science techniques in support of public health functions. We will present concepts, methods, and techniques for exploring, analyzing, and visualizing data from main social media platforms. In addition, we will discuss the development of surveys to assess exposure to information and health behaviors.

Statistical Methods for Population Based Cancer Survival Analysis – P. Dickman, P. Lambert, T. Andersson, M. Rutherford and E. Syriopoulou

The course will address the principles, methods, and application of statistical methods to studying the survival of cancer patients using data collected by population-based cancer registries. We cover central concepts, such as how to estimate and model relative/net survival. We will cover the use of flexible parametric survival models, cure models, loss in expectation of life, and estimation in the presence of competing risks.

Week-long, Half-day Courses

Applied Epidemiologic Methods: Integrating Diet/Lifestyle and Omics in the Era of Precision Nutrition – M. Song

This course provides an overview of the key principles and epidemiologic methods in studying the relation of diet/lifestyle and disease. It also presents the latest advances in integrating omics profiling (including metabolomics and microbiome) to better understand the role of diet/lifestyle in disease prevention in the era of precision nutrition.

Causal Inference in Epidemiology – M. Santacatterina

Are you curious about learning new ways to improve your decision-making skills using causal inference and observational data? By the end of this course, you will be able to identify, estimate and compute causal effects using observational data. Lab sessions in Stata and real-life research problems will provide an opportunity for "hands-on" training in causal inference.

Joint Modelling of Longitudinal and Survival Data – M. Crowther

This course will provide an introduction to the joint modelling of longitudinal and survival data through real applications to clinical trial data and electronic health records, describing the methodological framework, underlying assumptions, estimation, model building and predictions.

Linear Regression for Medical Research - R. Bellocco

The course teaches students how to apply and use linear regression models with continuous and categorical predictors. Topics include: Interpretation of the estimates, diagnostics, prediction, goodness of fit, confounding and interactions, modeling strategies.

Logistic Regression for Medical Research – M. Bottai

The course introduces students to the practice and application of logistic regression modeling for binary outcomes. Students will estimate, evaluate, and interpret binary data models arising from epidemiological studies, clinical trials, or other application areas.

Longitudinal Data Analysis - G. Fitzmaurice

This course focuses on methods for analyzing longitudinal and repeated measures data. The defining feature of longitudinal studies is that measurements of the same individuals are taken repeatedly through time, thereby allowing the direct study of change over time. This type of study design encompasses epidemiological follow-up studies as well as clinical trials.

Mediation Analysis - A. Bellavia

Mediation analysis evaluates the social and biological pathways by which causal effects operate. This course will introduce traditional and new methods for mediation analysis, with particular emphasis on its implementation and applications in epidemiology and the social sciences.

Principles of Epidemiology - E. Mostofsky

This course provides an introduction to the skills needed by public health professionals and clinicians to critically interpret the epidemiological literature.

Principles of Biostatistics – N. Orsini

Introduces the fundamental principles of statistics applied to medical and epidemiological research. Students will become familiar with fundamental statistical concepts in clinical and epidemiological studies and will utilize estimates obtained from suitably selected samples to carefully draw statistical inferences.

Research Methods in Health: Biostatistics - M. Bonetti

Students are introduced to more advanced statistical methods for the comparison of outcomes among groups, correlation and linear regression, contingency tables, and study design. The course is a natural follow-up course to Principles of Biostatistics (Week 1), or to earlier exposure to topics treated in that course.

Research Methods in Health: Epidemiology - M. Mittleman

This course will explore in greater depth the fundamental epidemiologic concepts introduced in Principles of Epidemiology (Week 1). The course will be taught with an emphasis on causal inference in epidemiologic research with a focus on chronic disease epidemiology and an emphasis on practical study design.

Survival Analysis - N. Orsini

The course introduces statistical methods for survival analysis, that is, the analysis of studies where the outcome is time-to-event. Measures covered are survival probabilities, event rates, and survival percentiles. The methods include non-parametric Kaplan-Meier, parametric survival, semi-parametric Cox regression, and Laplace regression models.

Stata® One-day Courses

Analysis of Prospective Studies with Stata®, - R. Bellocco

This course introduces students to the analysis of cohort studies, managing person times, estimating counts and incidence rate ratios and fitting count regression models.

Basics of Stata® - B. Pongiglione (June 2nd) and F. Gallo (June 9th)

The course aims to introduce participants to the basic tools of the Stata program and is designed for participants without or with very little experience using Stata. An overview of the main Stata functions will be provided. Specific topics include data management, data reporting, graphics and basic use of do-files. Participants will practice the application of these functions with real data examples. By the end of this one-day course, they will be capable of using Stata independently.

Data Visualization with Stata® - G. Capelli

An introduction to the logic and the strategies for visualizing data in Stata®, including issues in the choice of the graphic for different data and aims, and tips and tricks to prepare data for different graphical schemes. The power and flexibility of multiple "layers" in two-way Stata® panels will be exploited.

Epi Tables using Stata® - A. Discacciati

This course is designed to introduce students to basic Stata commands useful in epidemiological research: descriptive statistics to estimate the incidence of a binary response and to characterize the demographic information supplied by study participants; statistical tests to identify univariate predictors associated with the binary response; and tables of standardized means and proportions.

Meta-analysis with Stata® - R. D'amico

Covers Stata® commands for a variety of tasks regarding the combination of results from randomised controlled trials that consider binary, continuous and time to event outcomes: data preparation and input, fixed- and random-effects models, forest plots, heterogeneity across studies, publications bias, sensitivity analysis, and meta-regression models.

Multiple Imputation to handle missing data – T. Morris

This course will describe the problems caused by missing data and outline a principled approach to analysis. The emphasis will be on multiple imputation as a general purpose and popular tool for handling missing data. Participants will learn about full conditional specification as a way of imputing multiple missing variables and learn to use it in Stata. The course will end with discussion of reporting analyses using multiple imputation and understanding pitfalls.

Practical Introduction to propensity scores – K. Diaz

Participants will learn how to implement in Stata the main propensity score methods (stratification, matching, and inverse-probability-of-treatment-weighting) to adjust for confounding, in order to estimate causal effects from observational data.