

# COURSE DETAIL

## METHODS AND TOOLS FOR HEALTH STATISTICS

**Country**

Italy

**Host Institution**

University of Bologna

**Program(s)**

University of Bologna

**UCEAP Course Level**

Upper Division

**UCEAP Subject Area(s)**

Statistics

**UCEAP Course Number**

182

**UCEAP Course Suffix****UCEAP Official Title**

METHODS AND TOOLS FOR HEALTH STATISTICS

**UCEAP Transcript Title**

METHODS HEALTH STAT

**UCEAP Quarter Units**

6.00

**UCEAP Semester Units**

4.00

## Course Description

This course is part of the Laurea Magistrale degree program and is intended for advanced level students. Enrollment is by permission of the instructor. The course provides students with a fundamental understanding of the objectives, theory, and application of statistical methods for the production of health indicators. The learning process includes an updated overview of the aims and definitions adopted internationally to monitor population health and health care, particularly at EU level. The course provides detailed explanations on the statistical methods applied for the continuous improvement of health and social policies, with practical examples showing how to produce indicators from large databases using R software.

This course supports the student toward a fundamental understanding of the societal value of health information and the methods and tools used to report, evaluate, and continuously improve policies. In particular, the course presents solutions to current challenges involving the use of large scale routine databases available at the national and international level. Practical cases of data analysis are presented using relevant statistical software. Issues in the correct communication of health statistics are also discussed. At the end of the course, the student is able:

- to calculate and interpret health indicators used in regional, national and international reports (in particular, the EU European Core Health Indicators, European Sustainable Development Indicators and State of Health in the EU): from life expectancy to quality of care, access and efficiency measures.
- to apply advanced techniques for health systems performance evaluation: from risk adjustment and standardization through the use of multivariate models (generalized linear models, generalized estimating equations and multilevel models), to modern approaches using person-centered statistical models (risk prediction and stratification for population health management).
- to apply principles of study design (experimental vs observational) and analytical techniques (e.g. propensity scores, difference-in-difference) to plan and evaluate treatments and policies.

**Language(s) of Instruction**

English

**Host Institution Course Number**

85278,85277

**Host Institution Course Title**

METHODS AND TOOLS FOR HEALTH STATISTICS

**Host Institution Course Details**

<https://www.unibo.it/en/study/course-units-transferable-skills-moocs/course-uni...>

**Host Institution Campus**

BOLOGNA

**Host Institution Faculty****Host Institution Degree**

LM in STATISTICAL SCIENCES

**Host Institution Department**

STATISTICAL SCIENCES

**Course Last Reviewed**

2025-2026

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