



LUND
UNIVERSITY

Faculty of Medicine

MPHP23, Public Health: Biostatistics, 7.5 credits *Folkhälsovetenskap: Biostatistik, 7,5 högskolepoäng* Second Cycle / Avancerad nivå

Details of approval

The syllabus was approved by The Master's Programmes Board on 2019-04-29 and was last revised on 2022-10-18. The revised syllabus applies from 2022-10-19, autumn semester 2022.

General Information

The course is a compulsory component of the Master (120 credits) of Medical Science programme in Public Health.

Language of instruction: English

Main field of studies

Public Health Science

Depth of study relative to the degree requirements

A1N, Second cycle, has only first-cycle course/s as entry requirements

Learning outcomes

To give the participants an introduction to statistical methodology and handling of empirical data in a statistical software package. After the course, the participants should be able to conduct and interpret results from simple statistical analyses as well as be able to review elementary statistics in scientific studies critically.

Knowledge and understanding

The student should be able to on completion of the course:

- account for different types of variables on different scales, as well as describe how they can be presented numerically and graphically
- account for the concepts random samples, parameter and parameter estimation as well as how the uncertainty of estimations (standard error of mean/standard error) relates to sample size
- reason about the concepts generalizability and causality

Competence and skills

The student should be able to on completion of the course:

- formulate a null-hypothesis and hypothesis as well as account for the concepts level of significance, statistical strength, confidence interval and p-value
- select and justify an appropriate test for comparison between two groups as well as be able to know how the analysis is conducted and how to interpret the result

Judgement and approach

The student should be able to assess strengths and weaknesses with the use of different statistical models and to be able to draw conclusions about public health phenomena

Course content

The course discusses research questions that can be analyzed applying quantitative methodology and brings up common study designs and basic statistical concepts, principles and methods. The course introduces concepts as variable, distribution, parameter, randomness and variation. The concepts are illustrated with example from public health and medical science. Further, meaning and interpretation of different position and distribution measures are discussed as well as appropriate graphics to illustrate and to investigate the properties of the data being analyzed. Through concrete examples the from public health be introduced the concept parameter estimation. The uncertainty in estimations is discussed and described and with this in mind the testing of hypothesis and the interpretation of the p-values and statistical strength are introduced. The course also brings up common statistical tests for comparing two groups. Strong emphasis is put on interpretation of result and which conclusions that can be drawn from the concepts of statistical significance, evidence, effect size and generalizability. The participants will also receive a practical introduction to a statistical software package.

Course design

The course includes teaching, independent learning as well as project work. The teaching includes lectures and group work, as well as an introduction to statistical software. The participation in the course assumes that the student has access to a portable computer with a statistical software installed (more information will be given in connection with the start of the course). The students will carry out a group project work, which will be presented orally at the end of the course.

Assessment

The course has two exam modules. Exam module 1 consists of an individual written assignment (5 credits). Exam module 2 consists of a course portfolio (2.5 credits), it includes active participation in seminars as well as different preparatory components within the group project work.

In exceptional circumstances, other exam formats can also be applied

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with

a form of examination equivalent to that of a student without a disability.

Subcourses that are part of this course can be found in an appendix at the end of this document.

Grades

Marking scale: Fail, Pass, Pass with distinction.

For the grade Pass, it is required that both the exam modules are assessed with the grade Pass. Pass with distinction requires a passed course portfolio, as well as that the grade Pass with distinction on the individual written assignment.

Entry requirements

To be admitted to the course, students must have a Bachelor's degree or the equivalent. Specific entry requirement: English B from Swedish upper secondary school or the equivalent.

Subcourses in MPHP23, Public Health: Biostatistics

Applies from H19

- 1901 Individual Written Assignment, 5,0 hp
Grading scale: Fail, Pass, Pass with distinction
- 1902 Course Portfolio, 2,5 hp
Grading scale: Fail, Pass