



**Karolinska
Institutet**

Course syllabus for

Statistics 2, 5 credits

Statistik 2, 5 hp

This course syllabus is valid from autumn 2024.

Course code	4HM022
Course name	Statistics 2
Credits	5 credits
Form of Education	Higher Education, study regulation 2007
Main field of study	Medical Management
Level	AV - Second cycle
Grading scale	Fail (U), pass (G) or pass with distinction (VG)
Department	Department of Learning, Informatics, Management and Ethics
Decided by	Education committee LIME
Decision date	2023-09-13
Course syllabus valid from	Autumn 2024

Specific entry requirements

A Bachelor's degree or a professional degree equivalent to a Swedish Bachelor's degree of at least 180 credits in public health science, healthcare or other relevant social sciences subject area. And proficiency in English equivalent to English B/English 6.

To be eligible for semester 3, the student is expected to have successfully completed courses equivalent to 45 credits on the Master's programme in health economics, policy and management.

Objectives

The goal of the course is to increase knowledge about how medical statistics can be used to analyze health outcomes data to support decision-making about which health care interventions, health technologies and treatments should be used in order to improve health outcomes and survival in the face of limited health care resources.

After completion of the course the student should be able to:

Knowledge and understanding

- describe the uses of logistic regression, ANOVA and Cox regression,
- understand one-and two-way analysis of variance, repeated measures ANOVA and logistic regression,
- identify time-to-event data, types of censoring and able to explain the basic concepts used in survival analysis, such as hazard function and survival function,

- describe Cox regression model and understand how to estimate parameters in the model.

Skills and abilities

- use a statistical software package for analysis of ANOVA, survival data and logistic regression,
- interpret the results of one-way and two-way analysis of variance, repeated measures ANOVA, survival data and logistic regression,
- choose and apply appropriate regression methods for the analysis of health economic data.

Assessment ability and attitude

- critically review scientific papers involving the application of survival analysis, ANOVA and logistic regression,
- demonstrate ethical, critical and scholarly approach to research data and scholarly presentations.

Content

The course covers survival analysis, one-way and two-way analysis of variance, repeated measures ANOVA and logistic regression.

Teaching methods

The teaching methods include lectures, seminars, group-work, group discussion, computer exercises and student presentations.

Examination

Written assignments related to computer based exercises and take home examination.

Requirements for the grade Pass with distinction (VG) are VG on the take home examination and pass (G) on remaining assignments.

Compulsory participation

Attendance in mandatory parts is required. . The course leader assesses whether and if so, how absence can be compensated. Before the student has participated in all compulsory parts or compensated absence in accordance with the course director's instructions, the student's results for the course/respective part will not be registered in LADOK.

Limitation of number of examinations

A student that has failed in a regular examination has the right to participate in additional five examinations. If the student has not passed the exam after four participations he/she is encouraged to visit the study advisor.

Participation in an examination is defined as an occasion on which a student attends an examination, even if the student submits a blank examination paper. If a student has registered to sit an examination, but does not attend the examination, this is not defined as participation in the examination.

Transitional provisions

Examination will be provided during a time of two years after a possible cancellation of the course. Examination can take place according to an earlier literature list during a time of one year after the date when a major renewal of the literature list has been made.

Other directives

Course evaluation will be carried out in accordance with the guidelines established by the Board of Higher Education.

The course language is English.

Literature and other teaching aids

Campbell, Michael J.; Machin, David; Walters, Stephen J.

Medical statistics : a textbook for the health sciences

4. ed. : Chichester : Wiley, cop. 2007 - xii, 331 s.

ISBN:9780470025192 LIBRIS-ID:10097092

[Library search](#)

Kirkwood, Betty R.; Sterne, Jonathan A. C.

Essential medical statistics

2. ed. : Malden, Mass. : Blackwell Science, cop. 2003 - x, 501 s.

ISBN:0-86542-871-9 LIBRIS-ID:8731249

[Library search](#)

Altman, Douglas G.

Practical statistics for medical research

London: Chapman and Hall, 1991

ISBN:0-412-38620-8 LIBRIS-ID:8286190

[Library search](#)