

## **ADVANCED QUANTITATIVE ANALYSIS**

### **FÖRDJUPAD KVANTITATIV ANALYS**

7.5 credits - 7.5 högskolepoäng

---

**Course code:** MAKVAN

**Level:** Master's level

**Main Field of Study:** Sport Science

**Progressive specialization:** A1F

**Disciplinary Domain:** Sports

**Subject group:** Sport Science

**Established by:** Utbildnings- och forskningsnämndens kursplaneutskott 2025-12-05

**Version:** 4

**Valid from:** Spring semester 2026

---

### **Entry requirements**

Quantitative and qualitative methods and analysis (7.5 credits), advanced level, or the equivalent.

### **Intended learning outcomes**

#### *Knowledge and understanding*

- Explain central concepts in advanced quantitative data analysis and modelling,

#### *Skills and abilities*

- select and apply statistical models and programming code in advanced quantitative data analysis,

#### *Evaluation ability and approach*

- compare and critically review choices of different statistical models to answer research questions.

### **Course content**

The course includes the following areas:

- Introduction to data processing, analysis and data organization in statistical program R,
- Regression models, multivariate models and longitudinal models.

### **Examination**

The course examinations are as follows.

(2501) Skriftlig tentamen, 1.5 hp

(2501) *Written exam, 1.5 credits*

(2502) Muntlig presentation, 1.5 hp  
(2502) *Oral presentation, 1.5 credits*

(2403) Skriftlig inlämning, 4.5 hp  
(2403) *Written assignment, 4.5 credits*

When students are examined, the obligations and rights are set accordingly with GIS's policies and regulations.

For each test, an ordinary test opportunity and an ordinary retest opportunity are arranged. Ordinary re-examination (opportunity 2) is offered no earlier than two weeks and no later than six weeks after the student has been notified of the grading decision from the first examination opportunity.

In addition to regular exams and regular re-examinations, additional re-examinations are given (opportunity 3 or more) for both theoretical and practical examinations. At least three examination opportunities must be offered within one year for each examination within a course opportunity.

If a course requirement (compulsory course element) is not fulfilled, the opportunity for a replacement assignment can be given by the examiner. The assignment must be submitted no later than in connection with the completion of a module or course.

If the student has a decision from GIH about special educational support due to disability or other reasons, the examiner has the right to give an adapted test or let the student complete the test in an alternative way.

### **Grades**

On the course, one of the grades Pass with distinction (VG), Pass (G) and Fail (U) is given. To obtain a Pass grade for the course as a whole, a pass is required on all examinations in the course. For a grade Pass with distinction on the entire course, Pass with distinction on the oral presentation as well as the written assignment is required.

At the start of the course, at the latest, the student must receive precise information about grading criteria for each level.

### **Student influence and course evaluation**

In accordance with 1 chapter section 14 of the Higher Education Ordinance (1993: 100) a written course evaluation is arranged after completing the course. Feedback from the results to the students is done after completing the course evaluation.

Course evaluations should focus on the students' learning and the pedagogical process in the course, where learning outcomes, learning activities and the outcome of the examination form the basis for a pedagogical reflection as well as the quality of the course.

### **Type of instruction**

Teaching takes place in the form of lectures, group assignments, computer labs and seminars.

### Other information

In the event that a course has ended or undergone major changes, the student after the change or the abolition of the course must be guaranteed at least three additional examinations (in addition to the regular examination) for a period of at least one year, but no longer than two years after the course has ended/changed.

Teaching in English.

### Literature and list of references

#### Compulsory literature

Vittinghoff, E., Glidden, DV., Stephen SC., & McCulloch, CE. *Regression Methods in Biostatistics*. Springer-Verlag New York Inc, 509 p. ISBN: 9781461413523. Latest edition.

#### Optional literature

Chambers, JM. *Software for Data Analysis: Programming with R*. Springer, 498 p. ISBN: 9780387759357. Latest edition.

Fitzmaurice, GM., Laird, NM., & Ware, JH. *Applied Longitudinal Analysis*. John Wiley & Sons Inc, 752 p. ISBN: 9780470380277. Latest edition.

Loehlin, JC., & Beaujean, AA. *Latent Variable Models: An Introduction to Factor, Path, and Structural Equation Analysis*. Routledge, 390 p. ISBN: 9781138916067. Latest edition.