



Faculty of Arts and Social Sciences
Statistics

Syllabus

Statistical Learning with Applications in R

Course Code:	STGC22
Course Title:	Statistical Learning with Applications in R <i>Statistisk inlärning med tillämpningar i R</i>
Credits:	7.5
Degree Level:	Undergraduate level
Progressive Specialisation:	First cycle, has at least 60 credits in first-cycle course/s as entry requirements (G2F)

Major Field of Study:
STA (Statistics)

Course Approval

The syllabus was approved by the Faculty of Arts and Social Sciences 2021-09-13, and is valid from the Spring semester 2022 at Karlstad University.

Prerequisites

60 ECTS credits completed in Statistics

Learning Outcomes

Upon completion of the course, students should be able to:

1. explain the meaning of statistical learning, supervised and unsupervised learning,
2. analyse large amounts of data material using statistical learning algorithms,
3. use R to analyse data material, and
4. interpret the results of the analysis.

Content

Students acquire knowledge of modern methods of statistical learning.

Supervised methods of learning:

- regression methods
- classification methods
- support vector machine

Unsupervised methods of learning:

- principal component analysis
- k-means clustering and hierarchical clustering

R commands

Reading List

See separate document.

Examination

Assessment is based on written and oral presentations of a number of individual hand-in assignments and an individual oral exam.

If students have a decision from Karlstad University entitling them to Targeted Study Support due to a documented disability, the examiner has the right to give such students an adapted examination or to examine them in a different manner.

Grades

One of the grades Distinction (VG), Pass (G), or Fail (U) is awarded in the examination of the course.

Quality Assurance

Follow-up relating to learning conditions and goal-fulfilment takes place both during and upon completion of the course in order to ensure continuous improvement. Course evaluation is partly based on student views and experiences obtained in accordance with current regulations and partly on other data and documentation. Students will be informed of the result of the evaluation and of any measures to be taken.

Course Certificate

A course certificate will be provided upon request.

Additional information

The local regulations for studies at the Bachelor and Master levels at Karlstad University stipulate the obligations and rights of students and staff.