



**Karolinska  
Institutet**

Course syllabus for

## **Scientific methods 3 - scientific theory, method and study design, 9 credits**

Vetenskap 3 - vetenskaplig teori, metod och studiedesign, 9 hp

This course syllabus is valid from autumn 2019.

Please note that the course syllabus is available in the following versions:

[Autumn2018](#) , [Autumn2019](#) , [Autumn2020](#) , [Autumn2021](#) , [Autumn2022](#) , [Autumn2023](#) , [Autumn2024](#)

Course code	1AU063
Course name	Scientific methods 3 - scientific theory, method and study design
Credits	9 credits
Form of Education	Higher Education, study regulation 2007
Main field of study	Audiology
Level	G2 - First cycle 2
Grading scale	Pass, Fail
Department	Department of Clinical Science, Intervention and Technology
Decided by	Utbildningsnämnden CLINTEC
Decision date	2018-04-10
Revised by	Education committee CLINTEC
Last revision	2019-04-01
Course syllabus valid from	Autumn 2019

### **Specific entry requirements**

For admission to the course, it is required that the student has managed at least 105 HE credits from semester 1-4.

### **Objectives**

The course is included in a scientific streak which includes a total of 15 HE credits that runs through the entire study programme. The general aim of the scientific streak is to provide the student knowledge about research methodology and skills in scientific working methods. The specific aims of this course, Scientific methods 3 - scientific theory, method and study design, are to give the student basic knowledge in scientific theory, method, study design and statistics as well as preparation for subsequent science courses in the streak.

The expected learning outcomes of the course

On completion of the course, the student should be able to:

- explain scientific theoretical concepts and different research traditions within the audiological subject area
- explain and define different qualitative and quantitative methods and concepts
- apply statistical methods and hypothesis tests in calculations and arguments
- form a project idea that can lead to a degree project in the field of audiology or any nearby area

## Content

The course consists of three modules:

### **Scientific concepts and research methodology, 3.0 hp**

Grading scale: GU

The moment provides an introduction to scientific concepts to give an understanding of the different research traditions that occur in the field of audiology. In addition, evidence-based methodology is dealt with.

The moment contains lectures and seminars on qualitative methodology, science theory and evidence as well as ethics.

### **Quantitative method and statistics, 4.5 hp**

Grading scale: GU

The moment focuses on quantitative methodology with emphasis on descriptive statistics, surveys and hypothesis testing related to the subject area of audiology. The moment also provides an introduction to statistics programs.

### **Project idea, 1.5 hp**

Grading scale: GU

A project idea that can lead to a thesis should be formed. The work involves training in how to plan and post a study. In support of the design of the project idea, follow-up exercises are carried out in literature search in databases, eg. pubmed, web of science at KI's library.

## Teaching methods

Computer labs, lectures, group work, presentations, exercises, seminars and written assignments.

If absent from a compulsory part, the student is responsible for contacting the course coordinator for complementary assignments.

The examiner decides how absence from compulsory course elements can be made up. Study results cannot be reported until the student has participated in compulsory course elements or compensated for any absence in accordance with instructions from the course coordinator. Absence from a compulsory course element could mean that the student can not retake the element until the next time the course is offered.

## Examination

### **Scientific concepts and research methodology 1,5 credits**

Self-tests about scientific theoretical concepts

Self-test about statistical concepts

### **Quantitative methodology and statistics 6,0 credits**

Written laboratory reports

An individual take-home examination

### **Project idea 1,5 credits**

Oral presentation of the independently designed project idea  
PM about the independently designed project idea

For a Pass grade in the course, attendance and active participation in compulsory parts are also required.

A student who does not pass the examination on the first occasion is offered a maximum of five additional opportunities to sit the examination. Each time the course is offered, one regular examination and two additional examinations are given. Each occasion the student participates in the same test counts as an examination. Supplementary addition to a written assignment is counted as one examination. Submission of a blank exam paper is regarded as an examination. If a student has registered to sit an examination, but does not attend the examination, this is not defined as participation in the examination.

If there are special grounds, or a need for adaptation for a student with a disability, the examiner may decide to deviate from the syllabus's regulations on the examination form, the number of examination opportunities, the possibility of supplementation or exemptions from the compulsory section/s of the course etc. Content and learning outcomes as well as the level of expected skills, knowledge and abilities may not be changed, removed or reduced.

## **Transitional provisions**

Examination may take place under the previous reading list during a period of one year after the renewal of the reading list. Examination will be provided during a period of two years after a close-down of the course.

## **Other directives**

The course evaluation will be carried out according to the guidelines that are established by the Board of Education. The course evaluation will be carried out both through a written course evaluation at the end of the course, and through an oral course forum at least once in connection with the course, during which the students can state their opinions.

## **Literature and other teaching aids**

### **Mandatory literature**

*Ejlertsson, Göran*

#### **Statistik för hälsovetenskaperna**

Tredje upplagan : Lund : Studentlitteratur, [2019] - 279 sidor  
ISBN:9789144122694 LIBRIS-ID:8jv80nr76h70c6m3

[Library search](#)

*Nordenström, Jörgen; Edgren, Gustaf*

#### **Evidensbaserad medicin i Sherlock Holmes fotspår**

Femte, helt omarbetade upplagan : [Stockholm] : Nordic Medical Publications, 2019 - 106 sidor  
ISBN:9789188931368 LIBRIS-ID:7h4tznbs5c987j14

[Library search](#)

Other relevant materials will be added.

### **Recommended literature**

*Bell, Judith; Waters, Stephen*

**Introduktion till forskningsmetodik**

5., [uppdaterade] uppl. : Lund : Studentlitteratur, 2016 - 311 s.

ISBN:9789144110622 LIBRIS-ID:18719204

[Library search](#)

*Bland, Martin*

**An introduction to medical statistics**

Fourth edition. : Oxford : Oxford University Press, 2015. - xviii, 427 pages

ISBN:978-0-19-958992-0 LIBRIS-ID:21898377

[Library search](#)

*Ejlertsson, Göran*

**Övningsbok i statistik för hälsovetenskaperna**

1. uppl. : Lund : Studentlitteratur, 2012 - 190 s.

ISBN:9789144070490 LIBRIS-ID:13565774

[Library search](#)

*Bonita, R.; Beaglehole, R.; Kjellström, Tord*

**Grundläggande epidemiologi**

2., [rev.] uppl. : Lund : Studentlitteratur, 2010 - 292 s.

ISBN:9789144053806 LIBRIS-ID:11770718

[Library search](#)

*Kvale, Steinar; Brinkmann, Svend*

**Den kvalitativa forskningsintervjun**

3. [rev.] uppl. : Lund : Studentlitteratur, 2014 - 412 s.

ISBN:9789144101675 LIBRIS-ID:16763239

[Library search](#)

*Rothman, Kenneth J.*

**Epidemiology : an introduction**

2. ed. : New York, NY : Oxford University Press, cop. 2012 - viii, 268 s.

ISBN:978-0-19-975455-7 (pbk. : alk. paper) LIBRIS-ID:13454717

[Library search](#)

*Trost, Jan; Hultåker, Oscar*

**Enkätboken**

5., [moderniserade och rev.] uppl. : Lund : Studentlitteratur, 2016 - 178 s.

ISBN:9789144115450 LIBRIS-ID:19616911

[Library search](#)

Additional recommended literature:

\*Hansson, Sven-Ove

Konsten att vara vetenskaplig. <https://people.kth.se/~soh/konstenatt.pdf>

\*Statens beredningsverk för medicinsk och social utvärdering (SBU)

Utvärdering av metoder i hälso- och sjukvården och insatser i Socialtjänsten. En handbok. 2017  
<https://www.sbu.se/contentassets/d12fd955318f4feab3709d7ebcc9a72b/sbushandbok.pdf>