Course syllabus for

Scientific Methodology 2, 7.5 credits

Vetenskaplig metodik 2, 7.5 hp
This course syllabus is valid from autumn 2024.
Please note that the course syllabus is available in the following versions:
Autumn2018 , Autumn2020 , Autumn2024

Course code	1BA174
Course name	Scientific Methodology 2
Credits	7.5 credits
Form of Education	Higher Education, study regulation 2007
Main field of study	Biomedical Laboratory Science
Level	G2 - First cycle 2
Grading scale	Pass, Fail
Department	Department of Laboratory Medicine
Decided by	Utbildningsnämnden LABMED
Decision date	2018-04-09
Revised by	Education committee LABMED
Last revision	2024-03-07
Course syllabus valid from	Autumn 2024

Specific entry requirements

Passed courses of at least 105 credits from semester 1-4 at the biomedical laboratory science program or the equivalent. Passed in the course scientific methodology 1.

Objectives

The general aim of the course is to deepen the scientific ability and the attitude to prepare the students for the degree project and scientific projects in the working life. During the education, a development of the students' scientific ability and attitude according to the scientific progress ladder of the program takes place. The course scientific methodology 2 builds on the course scientific methodology 1 as well as elements in other courses during the education.

Knowledge and understanding
After completing the course, the student should be able to:

- Account for different types of study design and commonly occurring statistical methods for the analysis of collected data.
- Explain the central stages of the scientific method.

Skills and abilities
After completing the course, the student should be able to:

- Identify a problem that can be studied with scientific attempt and formulate hypothesis, research question, and aim.
- Choose and carry out appropriate statistical analysis and presentation with statistical software.
- Choose and carry out appropriate statistical analysis for quality control of laboratory analyses and patient examinations.
- In writing formulate results based on analysis of data.
- Critically review a scientific work based on given assessment criteria.

Assessment skill and attitude
After completing the course, the student should be able to:
Observe ethical aspects in connection with data collection, data analysis and result presentation and apply an ethical attitude.

Content

The course is divided in two parts.

Statistics, 4.5 hp

Grading scale: GU

Scientific methodology, 3.0 hp

Grading scale: GU

Teaching methods

The course is given in the form of lectures, seminars, group tuition and home assignments.
A large part of the course material and the activities are offered via internet. Short recorded lectures with associated compulsory assignments as well as seminars via internet.

Examination

Component 1, Statistics, be assessed by written presentation of laboratory sessions and written examination. Grade: Fail/Pass

Component 2, Scientific theory and method are assessed by written presentations and active attendance at seminar. Grade: Fail/Pass

For the grade pass in the whole course, the grade pass in component 1 and 2 are required.

Active attendance at seminars is compulsory.

The examiner assesses if, and in that case 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 respective part will not be registered. Absence from a compulsory activity may result in that the student cannot compensate the absence until the next time the course is given.

Students who do not pass a regular examination are entitled to re-sit the examination on five more occasions. If the student has failed six examinations/tests, no additional examination is given. Each

occasion the student participates in the same test counts as an examination. Submission of a blank exam paper is regarded as an examination. In case a student is registered for an examination but does not attend, this is not regarded as an 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 according to this syllabus will be provided during one year after the decision to terminate the course or revision of the syllabus.

Other directives

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

The course is offered in English. Certain teaching in Swedish can occur.

Literature and other teaching aids

Gauch, Hugh G.
Scientific method in brief

New York : Cambridge University Press, 2012 - 1 PDF-fil (288 p.)
ISBN:9781139095082 LIBRIS-ID:13602847
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

Harris, M.; Taylor, Gordon; Taylor, G.
Medical Statistics Made Easy, third edition

Scion Publishing Limited,
LIBRIS-ID:15988216

Machin, David; Campbell, Michael J.; Walters, Stephen John
Medical statistics : a textbook for the health sciences

4th ed. : Chichester : Wiley, 2007 - xii, 331 p.
ISBN:0470976632 (e-book) LIBRIS-ID:13605721
Library search

Adler, Robert E.
Science firsts : from the creation of science to the science of creation

New York : Wiley, cop. 2002. - vii, 232 p.
ISBN:0471401749 : LIBRIS-ID:8736882
Library search

Chalmers, Alan F.

What is this thing called science?

4th ed. : Maidenhead : Open University Press/McGraw-Hill Education, 2013 - xxi, 282 s.
ISBN:9780335262786 (pbk) LIBRIS-ID:14661305

Library search