SM00084, Epidemiology and statistics for clinical research – a web based course, 5 higher education credits

Third cycle

1. Confirmation
The syllabus was confirmed by the Council for PhD Education on 2017-03-07 to be valid from autumn semester 2017.
Responsible institute: Medicine

2. Position in the educational system
The course is an elective course within the third cycle at Sahlgrenska Academy.

3. Entrance qualifications
Admitted to postgraduate education.
Priority is given to graduate students who are admitted to the National Research School of General Practice.

4. Course content
The course includes the following:
The course begins with a discussion around standard designs and their applicability. Different methods of sampling and data collection are discussed in connection with the participants' own projects / project ideas, as well as methods and problems concerning data management. The emphasis is on modern epidemiologic methods, such as logistic regression with variants, survival analysis and mixed models, with practical exercises. Seminars will be provided to the participants' analyzes of their own research material. The course begins with three room bound teaching days, thereafter the education is web-based.

5. Learning outcomes
After completing the course the student is expected to be able to:

Knowledge and understanding
Understand and apply epidemiological design; ecological design, cross-sectional, case-control study and cohort study
- Interpret analysis of epidemiological data based on logistic regression and survival models.
- Interpret measures of disease occurrence (prevalence, incidence and cumulative incidence)
- Interpret comparative measure of disease occurrence (risk ratio, rate ratio, odds ratio, attributable risk and etiologic fraction).

Skills and abilities
- Implement analysis of epidemiological data based on logistic regression and survival models.
- Calculate measures of disease occurrence (prevalence, incidence and cumulative incidence)
- Calculate the comparative measures of disease occurrence (risk ratio, rate ratio, odds ratio, attributable risk and etiologic fraction)
- Analyze bias, confounding, mediating factors and regression dilution bias in an epidemiological study.

Judgement and approach
- Reflect upon the choice of specific statistical method to answer a research question.

6. Required reading
Separate list of required reading

7. Assessment
Compulsory parts of the course are: participating in lectures, group work, as well as the web-based teaching modules. Compulsory computer exercises and assignments will be examined during the course. The examination is in the form of individual home exam. Participation is mandatory in specified compulsory parts. Renewed examination of any absence on full / part of the examination is carried out as individual home exam.

Examination attempts are limited to five occasions. In the event that a course has been discontinued or undergone major changes guaranteed student access to at least three occasions (including regular examination) for a period of at least one year from the course was given.

A doctoral student who has failed a test twice has the right to change examiners, if it is possible. A written application should be sent to the Institute.

8. Grading scale
The grades are Pass or Fail.

9. Course evaluation
Course evaluation takes place in writing with the help of the Sahlgrenska Academy's joint course evaluation, and orally in dialogue with the students. The results of the evaluation will be communicated to the students and will function as a guide for the development of the course.

10. Additional information
Access to computers with headphone and speaker is required for the web-based operations. Instruction language is Swedish and English.