Adopted by the NRU 23 October 2010
Valid from 1 July 2010
Revised 20 September 2011, valid from 1 July 2011

LUNDS UNIVERSITET
Medicinska fakulteten

Board of Rehabilitation Sciences Education, NRU

IDRN13 Advanced Research Methods

15 credits Second cycle A1F

General Information

Main field
Sports Science

Type of course
The course is a compulsory component of the Master programme in Sports Science, comprising 10 weeks of full-time study. The courses in the programme must be studied in the order in which they are offered. The course complies with the regulations of the Higher Education Ordinance (1993:100 with later amendments).

Language of instruction
English

Learning Outcomes

The aim of the course is to provide students with in-depth knowledge of different research methods in sports science research, with an overview of different analytical procedures in statistics and with skills in statistical processing that will enable them to analyse current research issues in sports science. A further aim of the course is to provide students with increased knowledge of the interpretation, critical review and assessment of research publications and with insight into the processes that lead to the publishing of research.

Knowledge and understanding
For a pass on the course, students shall

- independently be able to search for, integrate and critically assess research information within the field of sports science
- demonstrate a good knowledge of different research methods
- demonstrate a good understanding of how to write a research report
- be able account for and discuss basic concepts in statistics
- master methods for statistical description and inference

Competence and skills
For a pass on the course, students shall

- independently be able to design a research approach for a specific sports science research issue of their choice
- independently be able to select a suitable analytical method for a specific research approach
- demonstrate the ability to independently use common statistics software for data analysis
- be able to interpret and present the results of an independently conducted statistical analysis

Judgement and approach
For a pass on the course, students shall

- be able to consider aspects of research ethics
- independently reflect on their need for personal development and further knowledge and skills in their field of expertise
- be able to critically assess published quantitative research articles with regard to the statistical methods and approaches adopted

Course Content

The course comprises tuition in quantitative and qualitative research methods and deals with the methodological aspects of project design and statistical analysis.
The teaching consists of lectures and discussion seminars on research design and methods, such as experimental, quasi-experimental, epidemiological and qualitative methods, and on how to write a research report. Furthermore, the significance of meta-analysis for the assessment of different research results is highlighted.
The course also introduces the research approach and basic assumptions of statistics, focusing on the understanding, interpretation and assessment of statistical results. Students are introduced to the principles for conducting and interpreting statistical investigations by means of methods such as hypothesis testing with p-value and confidence intervals, parametric and non-parametric population comparisons, variance analysis with covariance, post-hoc analysis, correlation, simple and multiple linear regression, logistical regression and power calculation for the assessment of the research significance of a result.

Subjects examined
Quantitative methods 5 credits
Qualitative methods 2.5 credits
Statistics 7.5 credits

Instruction and Assessment

Instruction
Teaching takes the form of lectures, seminars and computer exercises. Attendance is compulsory at seminars and computer exercises.

Assessment
The course has three forms of examination, which together with active attendance constitute the criteria for assessment (15 credits).
1. Individual written exam. An opportunity for re-examination is arranged about a month after the first exam and in August (grades of Pass with Distinction, Pass or Fail, 7.5 credits).
2. Assignments in practical data analysis (statistics) which are submitted throughout the course, in accordance with the schedule. Failed assignments can be revised for a grade of Pass. Revised assignments cannot be awarded the grade of Pass with Distinction (grades of Pass with Distinction, Pass or Fail, 2.5 credits).
3. Preliminary project plan for a degree project (grades of Pass or Fail, 2.5 credits).
4. Active attendance at seminars (grades of Pass or Fail, 2.5 credits)

Grades

Grades are set for a completed course. One of the grades Pass with Distinction, Pass or Fail is awarded.

Admission Requirements

To be admitted to the course, students must have a first degree, such as a Bachelor's degree comprising 180 higher education credits or an equivalent international degree, and proficiency in English corresponding to English B from Swedish upper secondary school or the equivalent. In addition, the courses IDRN02, IDRN03, IDRN04, IDRN05, IDRN07 and IDRN10 must have been successfully completed.

Literature

See appendix.

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Appendix: Literature

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Gratton, Chris & Jones, Ian (2010). *Research methods for sports studies* (2nd ed.). London: Routledge.

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2001). *Experimental and Quasi-Experimental Designs for Generalized Causal Inference.* Boston: Houghton Mifflin Company. 623 pages.

Bowers, David (2008). *Medical Statistics from Scratch* (2nd ed.). Wiley: Blackwell

300 pages of articles selected in consultation with the course management