



## DEPARTMENT OF EDUCATION AND SPECIAL EDUCATION

### **QRM1811 Interventions in educational research, 7.5 credits**

Interventioner i utbildningsvetenskaplig forskning, 7,5 högskolepoäng

*Third-cycle level / Forskarnivå*

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### **Confirmation**

This syllabus was confirmed by the Department of Education and Special Education on 2020-09-15, and is valid from Autumn semester 2020.

#### ***Responsible Department***

Department of Education and Special Education, Faculty of Education

### **Entry requirements**

For admission to the course, the applicant has to be registered as a doctoral student in the third cycle or have a doctoral degree. The applicant should also have documented prior knowledge corresponding to the learning goals in the QRM1800 course "Basic statistics for educational research, 7.5 credits" and to the learning goals in the QRM1810 course "Introduction to quantitative methods in educational research, 7,5 credits", or similar.

### **Learning outcomes**

The course is intended to provide knowledge on how to conduct interventions in educational contexts using experimental- and quasi-experimental designs. Essential concepts such as independent and dependent variables are considered in relation to intervention with and without control of potentially confounding variables. The effects of interventions are also considered in relation to sampling techniques and the utilization of different designs such as between-subject, within-subject, factorial, and factorial mixed model designs. The concept of Random Controlled Trial (RCT) designs are discussed. Moreover, quasi-experimental designs with and without control groups, removed studies treatment design, posttest-only design, and interrupted time series designs are also accounted for in the course. The course aims to develop knowledge on how to conduct interventions, which include the ability to select appropriate designs and statistical analysis. After successful completion of the course, the student should be able to:

#### ***Knowledge and understanding***

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- Explain key terms and concepts associated with interventions.
- Describe key characteristics of experimental and quasi-experimental designs, including factorial designs, within- and between subject designs and interrupted time-series designs.
- Understand the basic principles of designs with and without control conditions and with and without random allocation.
- Describe and explain different sampling techniques, such as random sampling, matched pair sampling, stratified sampling, convenience sampling.
- Understanding which statistical analyses are appropriate in relation to different intervention designs.
- Understand the difference between experimentally based designs and Random Controlled Trial designs (RCT).

### *Competence and skills*

- Orally and in writing, discuss possibilities and limitations of intervention designs within educational contexts.
- Be able to design an own intervention study.
- Critically discuss scientific projects and articles with respect to their:
  - design and methods, using appropriate terminology and conceptual tools.
  - measurement procedures and methods, using appropriate terminology and conceptual tools.
  - statistical analysis procedures, using appropriate terminology and conceptual tools.

### *Judgement and approach*

- Evaluate the relevance of different designs, measurements, and analytical approaches in relation to research questions, data, and scientific claims.
- Reflect on questions of research ethics and related decisions.
- Reflect on and evaluate research designs published in scientific journals.

### **Sustainability labelling**

The course is sustainability-related, which means that at least one of the learning outcomes clearly shows that the course content meets at least one of University of Gothenburg's stipulated criteria for sustainability labelling.

### **Course content**

The course introduces the basic principles of how to conduct interventions in educational contexts. Identify appropriate design as a function of the research question in conjunction with sampling techniques. During the course, students discuss methodological issues, such as choice of design and required sample sizes, sampling techniques, internal validity, external validity (generalisability), and identify steps that have to be taken in order to plan an intervention. Statistical analyses suitable for intervention designs are described, and data sets are supplied to participants to practice with under supervision. Concrete examples from studies are discussed and elaborated on in terms of home assignments. Each participant is expected to, under supervision, operationalize a research question/hypothesis and develop an individual intervention containing all the relevant aspects included in an intervention study. Moreover, the participants are also expected to critical review other course participant's intervention studies

and thus provide constructive feedback.

## **Types of instruction**

The main part of the course will be in on-line format. During the course, there will be three on-campus days (start at lunch day 1, a full second day, and end at lunch day 3) with lectures, seminars and workshops. Otherwise, the course is offered as an online course with lectures, seminars, literature studies, supervision and practical independent work. Course participants are expected to work independently and take responsibility for their own learning by reading the course literature, perform the practical work, and perform the tasks that are assigned by the course leaders. The teaching is largely based on the fact that the course participants themselves actively process the course literature, as well as prepare and participate in seminars and independently perform practical exercises in accordance with given instructions.

### ***Language of instruction***

The course is given in English.

Language of instruction is English, unless all participants agree on Swedish

## **Grades**

The grade Pass (G) or Fail (U) is given in this course.

The grading scale comprises the grades Pass (G), Fail (U).

## **Types of assessment**

To pass the course requires both active participation and successful fulfillment of the examination tasks. The examinations are divided into critical reviews of intervention studies and a task of operationalizing a research question/hypothesis in conjunction with planning an intervention study. The third examination tasks also include writing a review of another participant intervention study and presenting the result for the rest of the course participants.

## **Course evaluation**

The course will be evaluated after the course. The results will be used as a guide for improving the course.

## **Other information**

In order to participate in the course, access to own computer / laptop is needed together with computer accessories for online communication (camera, headphones, mic) and the required statistical software (see list of literature) or similar.

The number of participants is limited to 15. Priority will be given to doctoral students with an educational sciences focus, secondly supervisors for doctoral students with a focus on educational science research and thirdly researchers with a doctoral degree and an interest in quantitative designs and analyses.