DOCTORAL COURSES AT THE
MEDICAL FACULTY
UMEÅ UNIVERSITY
Spring semester 2024

Application deadline: 28 November 2023

The courses given within the framework of the faculty-wide doctoral program are advertised in a special order and doctoral students admitted to the program are automatically enrolled to these courses.
Innehåll
Analyzing data in qualitative research, 6 ECTS
An introduction to multilevel analysis: An epidemiological approach, 3 ECTS
Grundkurs i Good Clinical Practice (GCP) i kliniskt forskningsarbete, 4,5 hp
Informationssökning, referenshantering och publicering, 1,5 hp
Introductory course to doctoral studies: Research methodology and philosophy of science, 3 ECTS
Oral presentation, 1.5 ECTS
Qualitative content analysis, 4.5 ECTS
Research ethics, 3 ECTS
Research methodology with biostatistics, 7.5 ECTS
Research writing in the medical sciences, 5 ECTS
Writing science: How to write and publish scientific papers, 5 ECTS
Analyzing data in qualitative research, 6 ECTS (online)
Analys av data i kvalitativ forskning, 6 hp (online)

Course director
Ida Linander
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Course administrator
Carina Luther
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Department
Department of Epidemiology and Global Health

Date
Activities 8 April – 31 May
(Canvas opens 2 April)

Language
English

Number of participants
15

Form of teaching
Lectures (online) 30 hours
Seminars (online) 15 hours

Examination
Home examination

Course content
Qualitative research is characterised by a wide range of approaches and methods of analysis. The course emphasizes reflexive thematic analysis, but also provides an overview of other approaches such as content analysis and grounded theory. This course covers common features of qualitative data analysis including ideas and concepts connected to qualitative analysis (epistemology and ethics), steps of the analysis (for example, coding and thematization), and tools for interpretation. In addition, the course focuses on the writing process of qualitative findings and attends to the assessment of quality criteria in qualitative research. The course also introduces theoretical/conceptual frameworks as a way to advance qualitative analysis. The students bring their own qualitative data which provide them with an excellent opportunity for hands-on training into qualitative data analysis, using their own material.
An introduction to multilevel analysis: An epidemiological approach (online), 3 ECTS
En introduktion till flernivåanalys: Ett epidemiologiskt perspektiv, 3 hp

Course director
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Department
Department of Epidemiology and Global Health

Date
4 March – 12 April

Language
English

Number of participants
20

Form of teaching
Lectures 18 hours
Practical training 12 hours
Seminars

Examination
Home exam

Course content

This course is designed to offer an intensive, hands-on learning experience that will foster the development of basic skills in multilevel analysis with a focus on fundamental epidemiological concepts and interpretations rather than delving into complex statistical or mathematical formulae. It starts with a description of why multilevel models are necessary when dealing with data of a hierarchical nature. It then covers the basic theory of two-level models, encompassing intercepts and random slopes, with emphasis on effective modelling strategies. It then provides insights into the application of multilevel models for analyzing data with continuous outcomes (linear regression) and dichotomous outcomes (logistic regression). Additional topics covered include defining area-level variables and sample size calculations.
Grundkurs i Good Clinical Practice (GCP) i kliniskt forskningsarbete, 4,5 hp
Basic Good Clinical Practice pertaining to clinical research, 4.5 ECTS

Kursansvarig
Marcus Lind
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Kursadministratör
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Institution
Institutionen för folkhälsa och klinisk medicin

Datum
13–14 mars (via Zoom) samt 15 – 16 maj (på plats i Umeå).

Språk
Svenska

Antal deltagare
25

Undervisningsform
Föreläsningar 20 timmar
Seminarier 12 timmar

Examinationsform
Skriftlig hemuppgift (instruktion ges vid tillfälle 1), redovisning i grupper i seminarieform (under tillfälle 2)

Kursens innehåll

Informationssökning, referenshantering och publicering, 1,5 hp
Information retrieval, reference management and publication, 1.5 ECTS

Course manager
Mattias Lennartsson
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Department
Medical library/Medicinska biblioteket

Date
12 – 13 mars 2024

Language
English (or Swedish, if only Swedish speaking students)

Participants
25

Form of teaching
Presentations and workshops, 16 hours (two whole days)

Examination
Active participation in workshops and written assignments

Course content
Information retrieval, reference management and publication
The course is based on the participants’ own research projects, their information needs and includes an introduction to how to form a publication strategy. The course alternates presentations with workshops.

The participants will learn different search strategies, including systematic searches and citation searching. The focus lies on medical databases, such as PubMed/Medline, Cinahl, Cochrane library and different databases for searching evidence-based medicine. During the course the students will build their own library in a reference management software. EndNote and Zotero will be presented.

The course includes how the medical publication system works, both through ordinary journals and through open access. Included are processes surrounding manuscript submission, peer review, editorial decision making, and production.

Informationssökning, referenshantering och publicering
Kursen utgår från deltagarnas egna forskningsprojekt, deras informationsbehov och ger även en introduktion till hur man kan utforma en publiceringsstrategi. Kursen varvar föreläsningar med eget arbete i workshops.


Deltagarna får hjälp att komma igång med att utforma en publiceringsstrategi. Den strategiska publiceringens roll för genomslag och synlighet ingår, samt publicering med open access. Inkluderad är även information om processer som rör manuskript,
peer review, redaktionell beslutsgång och produktion.
Introductory course to doctoral studies: Research methodology and philosophy of science, 3 ECTS
Introduktionskurs till forskarstudier: Vetenskapsteori, kunskapsteori och forskningsmetoder, 3 hp

Please note! Compulsory for all doctoral students admitted before 1 July 2021.

Course director
Åsa Audulv
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Date
Week: 7 – 8

Language
English

Form of teaching
Lectures 10 hours
Group exercise 15 hours
Individual tasks 10 hours

Examination
In-class presentation of group work
Submission of individual tasks

Course content
This course is an introduction to philosophy of science and common concepts and theories used in research, corresponding to national goals. The course gives an overview of different methods and scientific approaches used at the Medical Faculty. Using the diversity of scientific approaches as point of departure, lectures on philosophy of science will give different perspectives of knowledge in medical research. Generic knowledge, research as part of society and how to communicate research will be in focus. Gender, equality and the importance of research in society will be discussed.

The educational format is a mixture of plenary lectures, a heavy emphasis of group and in-class discussion, participant’s own presentations and two assignments to work with in two steps, individually before and in groups during the course.
Oral presentation, 1.5 ECTS (online)
Muntlig presentation, 1,5 hp (online)

Course director
Suzanne Brink
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Department
Centre for educational development (UPL)

Date
Week: 4

Language
English

Number of participants
25

Form of teaching
Workshops
Practical assignments
Group work
Exercises
Lectures

Examination
Mandatory assignments
Mandatory workshops

Content
The goal of the course is to provide the students with tools and opportunities to develop oral presentation skills, with focus on oral presentations at conferences. The course includes sessions about rhetoric and body language, visual communication, storytelling and popular science presentations. There will be several opportunities to prepare and practice oral presentation, and to give, receive and use feedback for development of presentation skills.

The course is built on John Dewey’s concept “learning by doing” and David Kolb’s theories about experiential learning. Hence, course participants are expected to actively engage in all course activities.
Qualitative content analysis, 4.5 ECTS
Kvalitativ innehållsanalys, 4,5 hp

Course directors
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Course administrator
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Department
Department of Nursing

Date
5 – 7 February and 18 – 19 April

Language
English

Number of participants
20

Form of teaching
Lectures 10 hours
Hands-on exercise 8 hours
Examination seminars 10 hours

Examination
Written assignment

Course content
This course focus on qualitative content analysis and covers the method’s epistemological base, basic concepts and steps in the analysis process, and provides hands-on exercise of the method. Further we discuss concepts of importance for trustworthiness. Examples on various data (e.g. texts, pictures, video recordings) are discussed. Participants are welcome to use their own data in the course.
Research ethics, 3 ECTS (online)
Etik i forskningen, 3 hp

Please note! Compulsory for all doctoral students admitted before 1 July 2021. Students admitted as of 1 July 2021 take Research ethics, 2 ECTS (online), which is included in the faculty-wide programme.

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Course administrator Carina Luther
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Department Department of Epidemiology and Global Health

Date Week 5

Form of teaching Online lectures, seminars, group discussions

Examination Individual home assignments

Contents of the course

Basic research ethics concepts and the history of research ethics. Application to the Swedish Ethical Review Authority. How to archive research data and process personal data according to GDPR. Data management plan. Ethics in preclinical research (including research using animals). Ethical reflections regarding different types of data. Ethical reflections regarding research in other cultures, among Sámi, and research on vulnerable groups. Research misconduct and publication ethics. Current research ethical dilemmas.
Research methodology with biostatistics, 7.5 ECTS  
Forskningsmetodik med grundläggande statistik, 7,5 hp

Course director       Henrik Holmberg  
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Course administrator  Carina Luther  
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Department           Department of Epidemiology and Global Health

Date                 Course week 1: 26 February – 1 March (v9)  
                      Course week 2: 18 March – 21 March (v12)

Language             English

Number of participants 35

Form of teaching   Lectures 32 hours  
                   Practical exercises 16 hours

Examination          Home exam

Course content

The course is an introduction to epidemiology and biostatistics. Basic epidemiological and statistical concepts are covered, and issues of study design and validity are discussed. In biostatistics, lectures focus on sampling, descriptions of data and common tools for data analysis. Practical exercises are also included.
**Research writing in the medical sciences, 5 ECTS (online)**
Akademiskt skrivande i medicinsk vetenskap, 5 hp (online)

**Course director**
Karyn Sandström  
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**Date**
week 6 – week 11

**Language**
English

**Examination**
Three written texts representing research text sections, two rounds of peer review, and three text analyses of model texts

**Course content**

The aim of this course is to improve the English writing of researchers in the medical sciences who write in diverse disciplines. A primary goal of the course is to familiarize writers with the types of rhetorical organization, academic phraseology, disciplinary vocabulary and sentence structures of research texts in their own field. Participants learn to conduct text analysis and corpus analysis on model texts within their own disciplines/research so they can refine their understanding of research journals’ expectations. Another goal is to familiarize participants with writing strategies that have been found through research to be most effective for second language research writers. Included in strategy instruction is the introduction of computer-based writing tools, such as academic phrase lists, outlining tools, and useful online writing labs.

Participants work in disciplinary groups in three instances via Zoom and have regular access to the instructor via group tutorials. Instructional lectures are available on the Canvas site for each text section and are based on model texts provided by the Medical Faculty. Participants write three sections of their research texts during the 6-week course, participate in two rounds of written peer review, and receive instructor feedback on each of the three texts.
Writing science: How to write and publish scientific papers, 5 ECTS
Vetenskapligt skrivande: Att skriva och publicera vetenskapliga artiklar, 5 hp

Course directors
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Department
Faculty of science and technology

Date
13, 20, 27 March and 10, 17, 24 April

Language
English

Number of participants
30

Form of teaching
Lectures
Writing group discussions and exercises
Concluding classroom discussions

Examination
Mandatory attendance.
Active participation, including thorough feedback in writing groups. In multiple exercises write, revise, and edit a short article to reach submission quality as an extended abstract. Analysis and peer review of two published papers.

Course content
This course teaches advanced science writing. The ability to write scientific papers is a central skill and critical to the success of scientists. The overarching aim of this course is for students to receive the underlying philosophies and tools necessary to become skilled scientific writers. The course includes the three components of effective communication: content, structure, and language. First, we will analyze the key elements of good research articles, emphasizing the significance of the overall structure and exploring different strategies used to develop clear and interesting papers. Here we will highlight why an article must contain the subject of research, key knowledge gaps, compelling questions, clear descriptions of methods and results, and a well-organized discussion and conclusions. We will present different narrative techniques and analyze how we can use these to facilitate flow and continuity within and between sections. We will develop writing style at multiple organizational levels, from the broadest story arc, to the details of paragraph and sentence structure, to the nuance of particular word choices. Each student will work individually to refine his or her short articles using the tools presented during the course. At each course meeting,
students will work in small writing groups where they will analyze and provide constructive criticism on each other’s papers. Students will also engage with the broader group in larger discussions, sharing the successes and challenges from the daily exercises and the analytical work during the previous week. Examples of additional topics covered during the course include: the importance of scientific writing for researchers; how to interest readers; how to formulate a research question; how to frame solid arguments; and how to generate titles and write concise and compelling abstracts. In addition, students will also read about and discuss the challenge of gender bias in scientific publishing. Finally, students will meet and be able to ask questions to a chief editor of a scientific journal.

We will meet once a week for six weeks. Each meeting starts with a short lecture focused on scientific writing in practice, based on experience with journals, editors, etc. The optional readings will cover this part. We will then introduce the writing session and divide into small writing groups of three to four students. Before each session, students will have prepared a text, or revised their text according to a specific exercise. Other students within the writing group will have also commented on the new versions of their group members. Together, students will analyze, discuss, and revise the texts to improve them. Each of these weekly exercises derives from the ‘Writing Science’ book, which from chapter to chapter provides new tools to organize papers and improve writing skills. Each week we will cover three chapters and the corresponding exercises. We will also read and analyze published papers. At the end of each class period, we will reunite to summarize and conclude the day’s activities and present the exercise for the next meeting. Finally, at the end of the course, the instructors will provide all students with individual feedback on his or her paper.

We use Canvas to coordinate all exercises.

Importantly, we provide the first chapter of Writing Science and announce the first exercise before the first meeting, so that students can prepare a rough draft of a short article (800-850 word limit).