

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.

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Analyzing data in qualitative research, 6 ECTS (online)

Analys av data i kvalitativ forskning, 6 hp (online)

Course director	Ida Linander Phone: +46 90 786 95 21 Email: ida.linander@umu.se
Course administrator	Carina Luther Phone: +46 90 786 72 31 Email: carina.luther@umu.se
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	Masoud Vaezghasemi Phone: +46 90 786 77 30 Email: masoud.vaezghasemi@umu.se
Course administrator	Carina Luther Phone: +46 90 786 72 31 Email: carina.luther@umu.se
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 Epost: marcus.lind@regionvasterbotten.se
Kursadministratör	Ulrika Järvholm Telefon: +46 90 786 71 43 Epost: ulrika.jarvholm@umu.se
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

I kursen ges den studerande grundläggande kunskap om gällande regelverk vid klinisk forskning: Good Clinical Practice (GCP). Vidare ges en orienterande information om de lagar och förordningar som reglerar medicinsk forskning liksom etisk och statistisk värdering av ett forskningsprojekt. Kursen ger kunskap i hur ett studieprotokoll ska vara skrivet samt hur data samlas in och dokumenteras i strukturerad form. Analys av begrepp och regelverk i relation till det egna forskningsområdet fokuseras under kursen och i grupparbeten.

Informationssökning, referenshantering och publicering, 1,5 hp

Information retrieval, reference management and publication, 1.5 ECTS

Course manager	Mattias Lennartsson Telefon +46 90 786 52 36 post:mattias.lennartsson@umu.se
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 evidencebased 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 kommer att få lära sig olika sökstrategier, bland annat systematiska sökningar och citeringssökningar. Fokus ligger på medicinska databaser, såsom PubMed/Medline, Cinahl, Cochrane library och olika databaser för att söka efter evidensbaserad medicin. Deltagarna bygger under veckan upp ett eget bibliotek i ett referenshanteringsprogram. Under kursen presenteras programmen EndNote och Zotero.

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 Phone: +46 90 786 55 42 Email: asa.audulv@umu.se
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 Phone: + 46 90 786 76 50 Email: suzanne.brink@umu.se
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

Ulla Hällgren Graneheim
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Course administrator

Birgitta Nilsson
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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.

Course director	Anni-Maria Pulkki-Brännström Phone: +46 90 786 65 29 Email: anni-maria.pulkki-brannstrom@umu.se
Course administrator	Carina Luther Phone: +46 90 786 72 31 Email: carina.luther@umu.se
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 Phone: +46 90 786 66 59 Email: henrik.holmberg@umu.se
Course administrator	Carina Luther Phone: +46 90 786 72 31 Email: carina.luther@umu.se
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 Phone: +46 90 786 96 16 Email: karyn.sandstrom@umu.se
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	Barbara Sixt Phone: +46 90 785 25 95 Email: barbara.sixt@umu.se Ludvig Lizana Phone: +46 90 786 77 20 Email: ludvig.lizana@umu.se
Course administrator	Ola Berglund Phone: +46 90 786 89 25 Email: ola.berglund@umu.se
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).