

**FORSKARUTBILDNINGSKURSER
VID MEDICINSKA FAKULTETEN
UMEÅ UNIVERSITET
2021**

Vårterminen 2021

Deadline: 30 november 2020

Höstterminen 2021

Deadline: 31 maj 2021

<https://www.aurora.umu.se/enheter/med-fak/forskarutbildning/kurser-och-anmalan/>

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Allmän information

Forskarutbildningskursernas omfattning och uppläggning varierar. Vissa kurser ges i form av föreläsningar eller seminarier under dag- eller kvällstid. Sådana deltidskurser kan utsträckas under en större del av terminen. Andra kurser ges som heltidskurser och omfattar då vanligen såväl föreläsningar som laborativa moment och demonstrationer under en begränsad tid.

Om en planerad kurs ska ges eller inte beror på antalet sökande till kursen. Beslut om att en kurs inte ska ges fattas av kursledare och ordförande i Rådet för utbildning på forskarnivå, gemensamt.

Kursorten är Umeå om inget annat anges.

Samtliga kurser avslutas med någon form av examination och i samband med kursens avslutning sker även en kursutvärdering. Kursledaren är ansvarig för såväl examinationen som kursutvärderingen. Intyg till deltagarna på genomgången kurs utfärdas av kursgivande institution. Doktoranden lämnar intyget till forskarutbildningsadministratören på sin institution, denna för därefter in uppgifterna i Ladok.

Forskarutbildningskurserna står öppna för doktorander inom Medicinska fakulteten vid Umeå universitet. I mån av plats kan doktorander vid andra fakulteter vid Umeå universitet samt doktorander vid andra medicinska/odontologiska fakulteter, delta. Personer som redan har disputerat samt personer som ännu ej är antagna till utbildning på forskarnivå, får delta i mån av plats.

Ansökan är bindande. Om kursplats av någon anledning ej kan utnyttjas ska detta meddelas kursledaren så snart som möjligt, allra senast 14 dagar innan kursen startar.

Allmänna frågor rörande utbildning på forskarnivå besvaras av fakultetssamordnare Gunilla Mårald (gunilla.marald@umu.se) samt studierektor Ulrich von Pawel-Rammingen (ulrich.von.pawel-rammingen@umu.se).

Information om kursernas innehåll lämnas av kursansvarig.

General information

The scope and organization of doctoral courses vary. Some courses are offered in the form of lectures or seminars during daytime or in the evenings. Such part-time courses can be extended throughout most of the semester. Other courses are offered as full-time courses during a limited period of time and usually covers both lectures as well as practical exercises and demonstrations.

Whether a planned course should be offered or not depends on the number of applicants.

The course location is Umeå, unless otherwise stated.

At the end of the course an examination is carried out, as well as a course evaluation. The course leader is responsible for both the examination and the evaluation. Course certificates are issued by the department responsible for the course. As soon as a student has successfully completed a doctoral course and received a course certificate or completed another credit giving item, the administrator at the home department shall register these activities in Ladok. The student is responsible for informing the administrator.

Doctoral courses are mainly intended for those admitted to doctoral studies at the Faculty of Medicine, Umeå University. Doctoral students from other faculties/universities, researchers who have defended their thesis, and doctoral students to be can be eligible for admission, provided that there are available admission places and that the course requirements are fulfilled.

The application is binding. If you have been admitted but decide not to accept your place, you must inform the course leader as soon as possible, but no later than 14 days before the course starts.

General questions regarding graduate studies are answered by faculty officer Gunilla Mårald (gunilla.marald@umu.se) and by the director of studies Ulrich vi Pawel-Rammingen (ulrich.von.pawel-rammingen@umu.se).

Information about the courses in provided by the course director.

Kurser vårterminen 2021

A practical introduction to biobank research, 3.5 ETCS (online)

En praktisk introduktion till biobanksforskning, 3,5 hp (online)

Course Directors	Sophia Harlid, Christel Häggström, Lena Maria Nilsson, Elin Thysell, Maria Wennberg
Course Administrator	Lena Maria Nilsson Phone: +46 90 786 59 59 lena.nilsson@umu.se
Department	Public Health and Clinical Medicine
Date	Mandatory on-line seminars 13 April and 4 June.
Number of participants	30
Form of teaching	On-line lectures 15 hours On-line Seminars 15 hours Examination task 63 hours
Knowledge test	Presenting a proposal for withdrawal of biobank data and samples according to the routines of the NSHDS cohort. Giving feedback on another student's proposal.

Contents of the course

A large proportion of research carried out utilises research cohorts including biobank samples and survey data combined with other register data. To use already collected cohort data or stored biological samples for research purposes requires planning and preparing the project, and other kinds of practical and methodological considerations. This course will guide you through some of these issues, with examples from the Northern Sweden Health and disease study cohort (NSHDS) and refined NSDHS data from the Northern Sweden Dietary database (NSDD).

The aim with this course is to give practical knowledge on how to plan and perform observational studies in the NSHDS framework. The knowledge may also be applied on other similar cohorts.

In brief, students who successfully complete this course will be able to (1) Overview available data in NSHDS cohort including NSDD. (2) Describe the process and time required for the data application and acquisition. (3) Describe the feasibility and limitations of already collected cohort data for research purposes. (4) Describe pros and cons of the designs nested case-control and cohort studies. (5) Handle missing data. (6) Handle temporal changes in data collection. (7) Handle data on nutrition from NSHDS as a main or secondary exposure, including nutritional biomarkers. (8) Handle biological measures. (9) Consider and handle ethical issues including

orientation of GDPR. (10) Use knowledge obtained in this course in order to write applications based on samples and/or data from the NSHDS cohort or other similar cohorts.

Analyzing data in qualitative research, part 2, 3 ECTS (online) Analys av data i kvalitativ forskning, del 2, 3 hp (online)

Course director	Ida Linander Phone: +46 90 786 95 21 Email: ida.linander@umu.se
Course administrator	Ulrika Järholm Phone: +46 90 786 71 43 Email: ulrika.jarholm@umu.se
Department	Department of Epidemiology and Global Health
Date	Activities 3 – 28 May (opens 26 April)
Language	English
Number of participants	15
Form of teaching	Lectures (online) 20 hours Seminars (online) 10 hours
Knowledge test	Home examination

Contents of the course

The course focuses on the analysis and writing process of qualitative research. Focusing on the final stages of developing themes from codes and converting them to results. The course emphasizes thematic analysis, but also provides an overview of other approaches such as content analysis and grounded theory. The course provides hands-on training into qualitative data analysis, using qualitative data brought by the students. The course also attends to the assessment of quality criteria in qualitative research and on writing and disseminating qualitative research findings. Previous basic knowledge of qualitative research from courses or practical experience with qualitative studies is required. Students are required to bring their own data for course exercises.

An introduction to multilevel analysis: An epidemiological approach, 3 ECTS (online)

En introduktion till flernivåanalys: Ett epidemiologiskt perspektiv, 3 hp (online)

Course director	Miguel San Sebastián Phone: +46 90 786 51 50 Email: miguel.san.sebastian@umu.se
Course administrator	Ulrika Järholm Phone: +46 90 786 71 43 Email: ulrika.jarholm@umu.se
Department	Department of Epidemiology and Global Health
Date	1 March – 9 April
Language	English
Number of participants	20
Form of teaching	Lectures 18 hours Practical training 12 hours Seminars
Examination	Home examination
Course content	

This course is designed as 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 statistical or mathematical formulae. It starts with a description of why multilevel models are necessary if the data have a hierarchical structure. It then covers the basic theory of two level models (intercept and random slopes) with emphasis on modelling strategies. Next it explains how multilevel models can be applied to analyze data when the outcome is continuous (linear regression) and when the outcome is dichotomous (logistic regression). Further topics include defining area-level variables and sample size calculation.

eHealth - Concepts, principles and methods for healthcare in a digital age, 3 ECTS

eHälsa- Koncept, principer och metoder för vård och omsorg i en digital tid, 3 hp

Course director	Marlene Sandlund Phone: +46 90 786 95 30 Email: marlene.sandlund@umu.se Helena Lindgren Phone: +46 90 786 77 73 Email: helena.lindgren@umu.se
Department	Department of Community Medicine and Rehabilitation
Date	22-24 Mars and 19-20 April, 2021
Language	English
Number of participants	20
Form of teaching	Lectures, seminars, workshops and home assignments
Examination	The course is examined individually through active participation in compulsory workshops, seminars and presentations and requires a pass grade on an individual assignment

Course content

The course will give an overview of the foundations of eHealth and Medical Informatics that are increasingly becoming based on Artificial Intelligence (AI), including research methodologies. The purpose of the course is to provide the doctoral student the opportunity to apply new knowledge in theme discussions and explore, partly hands-on, the potentials in developing and applying digital tools, which are relevant to the doctoral student's research topic. The following themes will be included: ICT/AI-based interventions; design and development of "behaviour change systems" and decision-support systems; the professional's perspective: change of work practices when introducing new digital tools; and the citizen's perspective on digital aids for health, e.g., ethics, equality, equity, autonomy, self-management.

Grundkurs i Good Clinical Practice (GCP) i kliniskt forskningsarbete, 4,5 hp

Basic Good Clinical Practice pertaining to clinical research, 4.5 ECTS

Kursansvarig	Anders Blomberg Telefon: +46 90 785 22 34 Epost: anders.blomberg@umu.se
Kursadministratör	Elin Lindahl Telefon: +46 90 785 26 52 Epost: elin.lindahl@umu.se
Institution	Institutionen för folkhälsa och klinisk medicin
Datum	1 – 2 mars (via Zoom) samt 3 – 4 maj (i Umeå)
Språk	Svenska
Antal deltagare	25
Undervisningsform	Föreläsningar 20 timmar Seminarier 12 timmar
Examinationsform	Skriftlig hemuppgift, redovisning i grupper i seminarieform

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.

Health, environment and sustainability, 5 ECTS

Hälsa, miljö och hållbarhet, 5 hp

Course director	Barbara Schumann Phone: +46 90 786 62 42 Email: barbara.schumann@umu.se
Course administrator	Angelica Johansson Phone: +46 90 786 59 54 Email: angelica.johansson@umu.se
Department	Department of Epidemiology and Global Health
Date	18 January – 5 February
Language	English
Number of participants	5
Form of teaching	Lectures 25 hours Seminars 10 hours Lab/Practical sessions 20 hours
Examination	Take home assignment

Course content

Environmental and climate change are global threats to public health. They pose also risk for sustainability and development, in particular in low and middle-income countries.

The aim of this course is to explore interrelations between population health, dynamics in the environment, and opportunities for promoting sustainability in the context of an ever-changing world. Lectures and seminars will provide students with a comprehensive survey of the interconnectedness between health, environment and sustainability. Teaching will cover an introduction to environmental health/epidemiology, climate change and health, aspects of sustainability, environmental impact assessment, as well as policies and international efforts towards global solutions for sustainability. Research methods in the field of environmental epidemiology will be addressed in lectures and exercises.

The course will constitute lectures, practical exercises, seminars, critical article readings and an individual student project.

Informationssökning, referenshantering och publicering, 1,5 hp

Information retrieval, reference management and publication, 1.5 ECTS

Observera! Obligatorisk för doktorander antagna 1 juli 1996 - 31 december 2011

Kursansvarig	Mattias Lennartsson Telefon +46 90 786 52 36 E-post mattias.lennartsson@umu.se
Enhet	Medicinska biblioteket
Datum	Grupp 1: 16 – 17 mars Group 2: 23 – 24 mars
Språk	Svenska (Group 2 in English if there are any foreign participants)
Antal deltagare	36
Undervisningsform	Föreläsningar 16 timmar
Examinationsform	Hemtentamen/Exam questions

Kursens innehåll

Informationssökning, referenshantering och publicering

Kursen ger en fördjupad översikt av metoder och källor för informationssökning. Kursens tonvikt ligger på sökstrategier för informationssökning inom medicin och hälsa. Sökning sker i referens- och citeringsdatabaser samt databaser inom evidensbaserad medicin. För referenshantering ingår en genomgång av programmet EndNote. 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.

Information retrieval, reference management and publication

The aim of this course is to learn different methods in information retrieval. The course gives knowledge about designing search strategies for literature search in medicine and health. Searches are conducted in reference- and citation databases as well as databases in evidence based medicine. Training for reference management in the software EndNote is included. 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 decisionmaking, and production.

Introduction to molecular epidemiology, 1.5 ETCS

Introduktion till molekylär epidemiologi, 1,5 hp

Course director	Sophia Harlid, Anna Dahlin, Wendy Wu
Course administrator	Sophia Harlid Phone: +46 90 785 28 45 E-mail: sophia.harlid@umu.se
Department	Department of Radiation Sciences
Date	24 – 28 May
Number of participants	30
Form of teaching	Lectures 10 hours Group work/discussion 6 hours
Examination	Active participation in group discussions and oral presentation

Course content

Molecular Epidemiology is becoming increasingly important, both in academia and industry, and is, for example, an invaluable tool in the quickly progressing field of personalized medicine. With focus on different biological measurement approaches and epidemiological study designs, this course gives an introduction to how molecular and epidemiological methods can be used to understand biological processes and infer disease mechanisms. The course also describes how molecular epidemiology can be used for biomarker discovery and follow-up. Different ‘Omics’ technologies (e.g. genomics, epigenetics and proteomics) will be covered as part of the course.

The course will include group discussions e.g. about ethical considerations regarding use of human samples and sensitive data as well as a mandatory group work where participants design a hypothetical study.

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

Course director	Per Gustafsson Phone: +46 90 786 95 63 Email: per.e.gustafsson@umu.se
Course administrator	Ulrika Järvholm Phone: +46 90 786 71 43 Email: ulrika.jarvholm@umu.se
Department	Department of Epidemiology and Global Health
Date	22 – 26 February
Language	English
Number of participants	45
Form of teaching	Lectures 15 hours Group exercise 15 hours
Examination	Individual tasks, Group presentations

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 also gives an insight in the variation of methods used at the Medical Faculty including quantitative and qualitative methods and practice in communication science.

The educational format is a mixture of plenary lectures, group discussion, participant's own presentations and home assignments before the course. During the week we will have some presentations of the student's own research projects. Using the diversity of scientific perspectives 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. Later lectures focusing on differences in research methods used in pre- and clinical research is presented. Gender, equality and the importance of research in society will be discussed.

Qualitative content analysis, 3 ECTS

Kvalitativ innehållsanalys, 3 hp

Course director	Ulla Hällgren Graneheim Phone: +46 90 786 92 58 Email: ulla.hallgren.graneheim@umu.se
	Britt-Marie Lindgren Phone: +46 90 786 92 61 Email: britt-marie.lindgren@umu.se
Course administrator	Birgitta Nilsson Phone: +46 90 786 77 18 Email: birgitta.nilsson@umu.se
Department	Department of Nursing
Date	1 – 3 February and 22 – 23 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 (online)

Please note! Compulsory for all doctoral students

Course director

Klas-Göran Sahlén
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Course administrator

Ulrika Järvholm
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Department

Department of Epidemiology and Global Health

Date

26 - 29 April

Number of participants

60

Form of teaching

Online Lectures	20 hours
Online Seminars	10 hours

Knowledge test

Home exam

Course content

Basic concepts and history of research ethics. Ethical reflections on different kind of data. Application to ethical review board. Research on groups with limited autonomy. Misconduct in research. Publication ethics. Archives, openness and secrecy for research data. Data management plan. Introduction to ethics in animal research. Discussion on students' own project.

Research methodology with biostatistics, 7.5 ECTS

Forskningsmetodik med grundläggande statistik, 7,5 hp

Course director	Håkan Jonsson Phone: +46 90 786 61 01 Email: hakan.jonsson@umu.se
Course administrator	Ulrika Järholm Phone: +46 90 786 71 43 Email: ulrika.jarvholm@umu.se
Department	Department of Epidemiology and Global Health
Date	Course week 1: 15 – 18 March Course week 2: 12 – 15 April
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)

Vetenskapligt skrivande inom medicinsk vetenskap, 5 hp (online)

Course director	Karyn Sandström Phone: +46 90 786 96 16 Email: karyn.sandstrom@umu.se
Course administrator	Gunilla Mårald Phone: +46 90 786 71 78 Email: gunilla.marald@umu.se
Department	Department of Language Studies
Date	7 March – 11 June
Language	English
Number of participants	20

Course content

The aim of this course is to improve the academic writing of researchers in the medical sciences who have English as an additional language. A primary goal of the course is to familiarize writers with the types of rhetorical organization and argumentative expectations of the IMRD text sections. To work toward this goal, participants will learn to conduct genre analysis on research texts that have been chosen by their supervisors as model texts. Participants practice analyzing sections of research articles as connected to their respective discourse communities and apply these analyses to their own writing. Another goal of the course is to familiarize participants with the ways that syntax and grammatical forms in English perform specific functions in research texts. Each section of the research article relies on certain grammatical forms more than other forms, so the grammar will be taught as embedded in the IMRD format. Another goal is to familiarize participants with writing strategies that have been found through research to be most effective for second language research writers so they can more effectively use their time and resources to complete their research articles. Included in strategy instruction is the introduction of computer-based writing tools, such as medical corpora, academic phrase list, outlining tools, and online writing labs.

Obligatory aspects of the course

Students must participate in four rounds of peer review, turn in six of the required texts, and demonstrate that they have taken into consideration the instructional materials and earlier critique when writing subsequent texts. At the end of the course, participants will create a list of most common difficulties in their own writing that they identify through analysis of the commentary they receive from peers and the instructor. In order to participate in the peer review forums, students must keep to the schedule of the course.

Writing science: How to write and publish scientific papers, 5 ECTS

Vetenskapligt skrivande: Att skriva och publicera vetenskapliga artiklar, 5 hp

Course director	Ludvig Lizana Email: ludvig.lizana@umu.se
Course administrators	Elin Forsberg Phone: +46 90 786 68 13 Email: elin.forsberg@umu.se Lisa Hed Phone: +46 90 786 52 16 Email: lisa.hed@umu.se
Department	Faculty of science and technology
Date	16, 23 February and 2, 16, 23, 30 March
Language	English
Number of participants	30
Form of teaching	Lectures Writing group discussions and exercises Concluding classroom discussions
Examination	Mandatory attendance. Writing/editing/reviewing exercise for each meeting that builds on the same short article. Analysis and peer review of a set of published papers.

Course content

This is an advanced course in scientific writing. To succeed as a scientist the ability to write scientific papers is a central and very important skill. The aim of the course is that students should acquire tools and learn the craft to become skilled scientific writers. It includes the three components of effective communication: content, structure and language. We present the purpose and significance of the major general structure of a scientific paper. Here we highlight why an article must contain the topic of the research, a knowledge gap, a clear research question, a description of methods, results, discussion and conclusions. We present different narrative techniques and analyse how they can be used for better flow and continuity within and between sections. We develop writing skills down to the detailed level of internal structures of paragraphs and sentences.

We meet once a week for six weeks. Each meeting starts with a short lecture focused on scientific writing in practice and based on experience with, for example, journals and editors. Then we make a short introduction to the writing exercise and split into

small writing groups of three students. Each student has prepared a text, or revised the text according to the specific exercise, and the other students in the group have commented on the result. Together the students analyze, discuss, and revise the texts to further improve them. The exercises derive from the book *Writing Science*, which from chapter to chapter provides new tools to better tell the story. Each week, we cover three chapters and the corresponding exercises. Finally we reunite, summarize, conclude, and present the exercise for the next meeting.

Kurser höstterminen 2021

Design of intervention studies within patient-based research, 3 ECTS

Design av interventionsstudier inom patientnära forskning, 3 hp

Course directors	Erik Rosendahl Phone: +46 90 786 91 37 Email: erik.rosendahl@umu.se Marlene Sandlund Phone: +46 90 786 95 30 Email: marlene.sandlund@umu.se
Course administrator	Chatarina Carlén Phone: +46 90 786 65 09 Email: chatarina.carlen@umu.se
Department	Department of Community Medicine and Rehabilitation
Date	6 – 7 October and 17 – 18 November
Language	English (or Swedish, if only Swedish-speaking students)
Number of participants	16
Form of teaching	Lectures 12 hours Seminars/Workshops 20 hours Assignment 40 hours
Examination	Written assignment about study design relevant to own research project, and active participation in workshops and seminars.

Course content

The course includes theoretical and practical aspects of planning, conducting and evaluating randomized controlled trials, as well as studies with other designs aiming at evaluating interventions within patient-based research. The course gives an overview of criteria and guidelines on how studies should be conducted and reported in papers to achieve high quality, as well as the use of rating scales to assess the quality. The course will also give an insight into Patient and Public Involvement and the concept Complex Interventions. During the course, the student will judge advantages and disadvantages with various designs based on own ongoing or planned study within patient-based research.

Equity and health, 3.5 ECTS

Den jämlika hälsan, 3,5 hp

Course directors

Anna-Karin Hurtig
Phone: +46 90 786 67 30
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Lars Lindholm
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Course administrator

Angelica Johansson
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Email: angelica.johansson@umu.se

Department

Department of Epidemiology and Global Health

Date

15 – 29 September

Language

English

Number of participants

20

Form of teaching

Lectures	20 hours
Seminars	8 hours
Group-discussions	
Home assignments	
(Seminars, group-discussions and home assignments are mandatory)	

Examination

Written assignment

Course content

Inequities in health have got more and more attention, both in the national and global agendas. However, there are different opinions both regarding the definition of equity, and regarding which policies that are appropriate and justified to increase equity. This course introduces the theories which so far have been most influential in health care and public health – utilitarianism, Rawl's theory of justice, fair procedures, communitarianism and feminism. The course investigates how these theories have influenced both research and policy-making.

Evaluation of exercise capacity and level of physical activity in persons with cardiorespiratory disease, 1.5 ECTS

Bedömning av fysisk förmåga och fysisk aktivitetsnivå hos personer med hjärt- och/eller lungsjukdom, 1,5 hp

Course director	Karin Wadell Phone: +46 90 786 98 87 Email: karin.wadell@umu.se
Course administrator	Chatarina Carlén Phone: +46 90 786 65 09 Email: chatarina.carlen@umu.se
Department	Department of Community Medicine and Rehabilitation
Date	13 – 14 October and 10 November
Language	Swedish or English
Number of participants	15
Form of teaching	Lectures 8 hours Practical training 6 hours Seminars 5 hours
Examination	Presentation of take home assignment
Course content	

The course will give an introduction to exercise capacity and level of physical activity and evaluation of these parameters in patients with different cardiorespiratory diseases. It will give an insight to what instruments that are available today. The students will learn how to critically evaluate and practice different test methodologies of functional physical capacity and level of physical activity. The student chose one method to explore validity and reliability for the chosen patient category. The work will be presented at an examining seminar.

Evidence based public health, 4 ECTS

Evidensbaserat folkhälsoarbete, 4 hp

Course director

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Course administrator

Angelica Johansson
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Department

Department of Epidemiology and Global Health

Date

30 August – 14 September

Language

English

Number of participants

20

Form of teaching

Lectures	30 hours
Seminars	10 hours

Examination

Take home assignment

Course content

It is desirable to found public health policies on best possible evidence. Almost no potential policy can meet the conditions necessary for randomized control trials. On the other hand, too low evaluation standards can imply that ineffective or even harmful policies are implemented. Research aimed at a foundation for policy-making further requires an understanding of the decision-making process in public organizations. Decision-makers have to balance more or less legitimate interest of different stakeholders, and even make decisions when the evidence is far from perfect. They commonly act under economic and legitimate constraints, such as respect for human rights. Frameworks for compiling available evidence from different sources such as realistic synthesis and Markov-modelling will be presented and discussed. Most of the practical experience of compiling different aspects of health technologies can be found in the health technology assessment literature. Concrete and timely examples will be studied.

Genomic and epigenomic medicine, 4.5 ECTS

Medicinsk genomik och epigenomik, 4.5 hp

Course director	Andreas Hörnblad Phone: +46 90 786 92 06 Email: andreas.hornblad@umu.se
Course administrator	Lina Sollén Phone: +46 90 786 52 76 Email: lina.sollen@umu.se
Department	Umeå Centre for Molecular Medicine
Date	6 – 24 September
Language	English
Number of participants	3-10
Form of teaching	Lectures 24 hours Group discussions 20 hours Practical sessions 48 hours Individual studies 28 hours
Examination	Oral presentation, active participation in group discussions, lab work and seminar

Course content

The course provides an in-depth knowledge of genomics, epigenomics and comparative genomics, and its importance in human disease and translation into clinical tools. The course touches upon *cutting-edge* technologies such as CRISPR-(epi)genome editing, RNA-seq, ChIP-seq, ATAC-seq, 3C (Chromosome Conformation Capture-methods, eg. HiC, 4C-seq), as well as recent advances in optogenetics and chemogenetics, and the use of different model organisms. Together with the methods, current research findings and clinical applications will be conveyed and discussed throughout the course, with focus on the impact on human diseases (e.g. enhanceropathies: human diseases related to genetic/epigenetic/structural disruption of enhancer function). In this course, the students will have the chance to perform CRISPR-Cas genome editing experiments, as well as ChIP (chromatin immunoprecipitation) to assess the effect of a cancer drug on the epigenetic status of gene promoters and enhancers.

How to write grant applications, 3 ECTS

Att skriva ansökningar om forskningsanslag, 3 hp

Course director	Karl-Erik Renhorn Phone: +46 70 242 98 58 Email: karl-erik.renhorn@umu.se
Course administrator	Ulrika Järvholm Phone: +46 90 786 71 43 Email: ulrika.jarvholm@umu.se
Department	Department of Epidemiology and Global Health
Date	15 November – 3 December
Language	English
Number of participants	20
Form of teaching	Lectures 20 hours Seminars 10 hours Exercises 15 hours
Examination	Presentation of take home assignment; level of attendance

Course content

The course will present course participants with tools to enable them to understand research funding systems; to structure their proposal writing; and to compile high-quality research applications, thus increasing their chances for success. The content includes policy background and rationale for public research funding, the procedures and processes of research funding; preparation and planning of application writing, and language and style. A large part of the course will be devoted to individual and group exercises.

Intervjuer och observationer som kvalitativa datainsamlingsmetoder, 3 hp

Interviews and observations as qualitative data collection methods, 3 ECTS

Kursansvarig

Britt-Marie Lindgren
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Jenny Molin
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Kursadministratör

Birgitta Nilsson
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Institution

Institutionen för omvårdnad

Datum

20 – 22 september och 18 – 19 november

Språk

Svenska

Antal deltagare

20

Undervisningsform

Lektioner	10 timmar
Praktiska övningar	8 timmar
Examinationsseminarium	10 timmar

Examinationsform

Skriftlig uppgift

Kursens innehåll

Intervjumetoder som presenteras är; individuella intervjuer som till exempel strukturerade, semi-strukturerade och ostrukturerade intervjuer, narrativa och reflekterande intervjuer samt fokusgruppsintervjuer. Vidare omfattar kursen deltagande och icke-deltagande observationstekniker. Kursen behandlar också tekniker för insamling och utskrift av data.

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

Course director	Per Gustafsson Phone: +46 90 786 95 63 Email: per.e.gustafsson@umu.se
Course administrator	Ulrika Järvholm Phone: +46 90 786 71 43 Email: ulrika.jarvholm@umu.se
Department	Department of Epidemiology and Global Health
Date	27 September – 1 October
Language	English
Number of participants	45
Form of teaching	Lectures 15 hours Group exercise 15 hours
Examination	Individual tasks, Group presentations

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 also gives an insight in the variation of methods used at the Medical Faculty including quantitative and qualitative methods and practice in communication science.

The educational format is a mixture of plenary lectures, group discussion, participant's own presentations and home assignments before the course. During the week we will have some presentations of the student's own research projects. Using the diversity of scientific perspectives 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. Later lectures focusing on differences in research methods used in pre- and clinical research is presented. Gender, equality and the importance of research in society will be discussed.

Introduktion till registerforskning, 2 hp (online)

Introduction to register-based research, 2 ECTS (online)

Kursansvarig	Christel Häggström Telefon: +46 90 785 72 80 Epost: christel.haggstrom@umu.se
Kursadministratör	Ulrika Järholm Telefon: +46 90 786 71 43 Epost: ulrika.jarholm@umu.se
Institution	Institutionen för epidemiologi och global hälsa
Datum	8 – 12 november
Språk	Svenska
Antal deltagare	20
Undervisningsform	Föreläsningar 18 timmar Seminarier 12 timmar Praktiska exempel 8 timmar
Examinationsform	Att medverka i och klara av praktiska övningar på seminarier

Kursens innehåll

Detta är en introduktionskurs i registerforskning. Kursen avser att ge generell teoretisk kunskap om och grundläggande praktiska färdigheter för forskning på kvalitetsregister.

Longitudinal data analysis, 1.5 ECTS

Longitudinell analys, 1,5 hp

Course director	Johan Sommar Phone: +46 90 785 34 53 Email: johan.sommar@umu.se
Course administrator	Elin Lindahl Phone: +46 90 786 96 54 Email: elin.lindahl@umu.se
Department	Department of Public Health and Clinical Medicine
Date	6 – 9 December
Language	English
Number of participants	20
Form of teaching	Lectures 12 hours Data exercise 9 hours
Examination	Practical assignment
Course content	

The course deals with statistical analysis in studies with repeated or time dependent outcomes.

- Introduction to longitudinal data and longitudinal study designs
- Characteristics and description of longitudinal data
- Introduction to Mixed models with random and fixed effects for longitudinal analysis
- Introduction to General Estimation Equation models
- Covariance structures and their implementation within longitudinal analysis
- Model fitting in longitudinal analysis

The course is given in form of lectures, seminars, and practical computer exercises. *The course is intended for students with practical and theoretical knowledge of biostatistics corresponding to the course Research methodology with biostatistics, 7.5 ECTS (see page 14 and 36).*

Methods in social epidemiology, 3 ECTS

Metoder inom social epidemiologi, 3 hp

Course director	Miguel San Sebastián Phone: +46 90 786 51 50 Email: miguel.san.sebastian@umu.se
Course administrator	Ulrika Järvholm Phone: +46 90 786 71 43 Email: ulrika.jarvholm@umu.se
Department	Department of Epidemiology and Global Health
Date	13 – 17 December
Language	English
Number of participants	5 at PhD-level
Form of teaching	Lectures 18 hours Practical training 12 hours Seminars

Lectures will be held in the mornings and computer sessions with applied exercises will follow in the afternoon after each lecture session. Hands-on practical session in the computer labs will use Stata software. *Previous knowledge of Stata is required.*

Examination Home exam

Course content

Socioeconomic inequalities in health are a major challenge for health policy. Monitoring the changes in the magnitude of these inequalities is essential to assess the effectiveness of health policy interventions. There is a wide variety of summary measures for the magnitude of socioeconomic inequalities in health. These measures choose different perspectives, and it is recommended to assess the magnitude of health inequalities based on a set of diverse measures that together cover all the relevant perspectives. Both simple and sophisticated summary measures are available for each of these perspectives.

This course is designed as an intensive, hands-on learning experience that will foster the development of theoretical knowledge and basic skills in calculating and interpreting different health inequality measurements. The different measurements included in the course are: the relative index of inequality and the concentration index, the principal component analysis applied to socioeconomic status, the measurement of intersectionality, how to conduct a decomposition analysis and propensity matching score. Further topic includes methodological issues when carrying out life course studies and the advantages of multilevel analysis.

Previous knowledge on biostatistics and epidemiology are pre-requisite for taking this course.

Expected learning outcomes

Students who successfully complete this course will be able to:

- Differentiate various measures of health inequalities and judge their weaknesses and strengths.
- Understand the theoretical concepts behind the health inequality measurements.
- Calculate the measures of health inequalities presented in the course.
- Interpret the results of the health inequality measurements.

Omvårdnadens teori och begrepp i relation till forskning och klinisk praxis, 4,5 hp

Nursing theory and concepts in relation to research and clinical practice, 4.5 ECTS

Kursansvarig

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Kursadministratör

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Institution

Institutionen för omvårdnad

Datum

28 september – 17 december

Språk

Svenska

Antal deltagare

20

Undervisningsform

Lektioner: 16 timmar
Nätseminarium vid 2-3 tillfällen
Examinationsseminarium: 8 timmar

Examinationsform

Individuella papers som diskuteras vid ett examinationsseminarium

Kursens innehåll

Kursen belyser omvårdnadsämnets utveckling och har fokus på omvårdnadens teori och begrepp. Den modell för omvårdnad, som används och har utvecklats successivt vid Institutionen för omvårdnad, Umeå universitet, fungerar som utgångspunkt för kursen. De olika aspekterna i modellen utgörs av patient och vårdare, närstående, uppgift och relation, hälsa, miljö, organisation, samhälle, vårdfilosofi och etik. Modellen fungerar som stöd i att systematisera och beskriva omvårdnad, i såväl teori, forskning som klinisk praxis. Utifrån den egna forskningsinriktningen är målet sedan att fördjupa förståelsen för relevanta teorier/begrepp och reflektera över dess betydelse för klinisk praxis.

Kursen bygger huvudsakligen på självstudier och är delvis nätburen. Två sammankomster planeras på kursorten. Det första tillfället, två heldagar vid kursstart, omfattar främst föreläsningar och det andra tillfället, en heldag vid kurslut, ägnas åt examinationsseminarium. Via nätet förs diskussioner och obligatoriska seminarier, bland annat om omvårdnadsämnets teoriutveckling.

Oral presentation, 1.5 ECTS

Muntlig presentation, 1,5 hp

Course director	Åse Tieva, UPL
Course administrator	Marie Friman, UPL
Department	Centre for educational development (UPL)
Date	25 – 26 November 6 – 7 December
Language	English
Number of participants	25
Form of teaching	Workshops Practical assignments Group work Exercises
Examination	Mandatory assignments Mandatory workshops

Course content

The goal of the course is to give the students an opportunity to develop skills in oral presentation, with focus on presentations at conferences. To make this possible, the course includes sessions about on rhetoric and body language. We will work with Power point presentations, presentation using the headline technique and poster presentations to give the students the opportunity to develop an array of presentation skills. There will be several opportunities to practice these methods and the teachers and students will give feedback to the different presentations that each student will perform. There will also be opportunities to learn how to respond to feedback and how to use it to improve presentation skills.

The course is built on John Dewey´s concept “learning by doing” and David Kolb´s theories about experiential learning.

Qualitative data analysis, 7.5 ECTS

Kvalitativ dataanalys, 7,5 hp

Course director

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Kristina Lindvall

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Course administrator

Angelica Johansson

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Department

Department of Epidemiology and Global Health

Date

30 September – 1 November

Language

English

Number of participants

10 at PhD-level

Form of teaching

Lectures 22 hours

Seminars 12 hours

Group works 12 hours

Group supervision 5 hours

Examination

Literature seminar, course project, individual paper and article analysis

Course content

The course focuses on the basic principles and steps of Qualitative Data Analyses using examples from mainly Grounded Theory method but also other methods. Participants will perform the basic steps of analyzing qualitative data (their own or of a teacher-provided). Moreover, participants will examine and discuss critically various examples of scientific studies that employ Grounded Theory method and other Qualitative methods.

Regression models in medical sciences, 3 ECTS (online)

Regressionsmodeller för medicinska vetenskaper, 3 hp (online)

Course director	Marie Lindkvist Phone: +46 90 786 61 04 Email: marie.lindkvist@umu.se
Course administrator	Ulrika Järholm Phone: +46 90 786 71 43 Email: ulrika.jarholm@umu.se
Department	Department of Epidemiology and Global Health
Date	1 – 28 November
Language	English
Number of participants	20
Form of teaching	Web lectures Web seminars Written exercises Computer exercises
Knowledge test	Home examination

Contents of the course

The PHD-students must have access to SPSS on their own computer. The emphasis of the course is on the understanding of statistical reasoning in the analysis of epidemiological data analysis and in medical and public health research.

Regression analysis is a statistical technique used for analysing the relationship between the outcome (dependent variable) and the explanatory variables (independent variables). In this course, several regression models will be described and applied. The course will start with a repetition of linear regression model which deals with a continuous outcome variable. After that, binary logistic regression (for binary outcome variable) and Cox regression (for “time to event” outcome variable) will be introduced and applied. Basic concepts in survival analysis, including censoring, survival function and hazard function, will be discussed. Finally, regression models where the outcome is counts are processed (Poisson regression and negative binomial regression).

Research ethics, 3 ECTS, (online)

Etik i forskningen, 3 hp (online)

Please note! Compulsory for all doctoral students

Course director

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Course administrator

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Department

Department of Epidemiology and Global Health

Date

29 November – 2 December

Number of participants

35

Form of teaching

Online Lectures	20 hours
Online Seminars	10 hours

Knowledge test

Home exam

Contents of the course

Basic concepts and history of research ethics. Ethical reflections on different kind of data. Application to ethical review board. Research on groups with limited autonomy. Misconduct in research. Publication ethics. Archives, openness and secrecy for research data. Data management plan. Introduction to ethics in animal research. Discussion on students' own project.

Research methodology with biostatistics, 7.5 ECTS

Forskningsmetodik med grundläggande statistik, 7,5 hp

Course director	Håkan Jonsson Phone: +46 90 786 61 01 Email: hakan.jonsson@umu.se
Course administrator	Ulrika Järvholm Phone: +46 90 786 71 43 Email: ulrika.jarvholm@umu.se
Department	Department of Epidemiology and Global Health
Date	Course week 1: 4 October – 7 October Course week 2: 25 – 28 October
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.

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

14/10, 21/10, 28/10, 4/11, 11/11 & 18/11

Language

English

Number of participants

30

Form of teaching

Lectures
Writing group discussions and exercises
Concluding classroom discussions

Examination

Mandatory attendance.
Writing/editing/reviewing exercise for each meeting that builds on the same short article.
Analysis and peer review of a set of published papers.

Course content

This is an advanced course in scientific writing. To succeed as a scientist the ability to write scientific papers is a central and very important skill. The aim of the course is that students should acquire tools and learn the craft to become skilled scientific writers. It includes the three components of effective communication: content, structure and language. We present the purpose and significance of the major general structure of a scientific paper. Here we highlight why an article must contain the topic of the research, a knowledge gap, a clear research question, a description of methods, results, discussion and conclusions. We present different narrative techniques and analyse how they can be used for better flow and continuity within and between sections. We develop writing skills down to the detailed level of internal structures of paragraphs and sentences.

We meet once a week for six weeks. Each meeting starts with a short lecture focused on scientific writing in practice and based on experience with, for example, journals and editors. Then we make a short introduction to the writing exercise and split into small writing groups of three students. Each student has prepared a text, or revised the text according to the specific exercise, and the other students in the group have

commented on the result. Together the students analyze, discuss, and revise the texts to further improve them. The exercises derive from the book *Writing Science*, which from chapter to chapter provides new tools to better tell the story. Each week, we cover three chapters and the corresponding exercises. Finally we reunite, summarize, conclude, and present the exercise for the next meeting.