



**Karolinska
Institutet**

Course syllabus for

Diet, physical activity and disease prevention - interventions, mHealth and eHealth, 15 credits

Kost, fysisk aktivitet och sjukdomsförebyggande - interventioner, mHälsa och eHälsa, 15 hp

This course syllabus is valid from spring 2025.

Please note that the course syllabus is available in the following versions:

Autumn2024 , Spring2025

Course code	4NT024
Course name	Diet, physical activity and disease prevention - interventions, mHealth and eHealth
Credits	15 credits
Form of Education	Higher Education, study regulation 2007
Main field of study	Nutrition Science
Level	AV - Second cycle
Grading scale	Pass with distinction, Pass, Fail
Department	Department of Medicine, Huddinge
Decided by	Education committee BioNut
Decision date	2024-03-05
Revised by	Education committee MedH
Last revision	2024-10-07
Course syllabus valid from	Spring 2025

Specific entry requirements

At least grade pass for the course "Diet and health - scientific evidence, recommendations and sustainability" (4NT000, 4NT021) within the Master's Programme in Nutrition Science.

Objectives

Part 1: Public health disease monitoring, large scale data collection, analysis, and data visualizations, 7 credits

After completion of this part of the course, the student should be able to:

- account for global health problems in relation to nutrition and describe the role of relevant organizations, policy documents and action plans in disease management in the field of public health nutrition.
- comprehend, explain and reproduce the main types of cross-sectional and longitudinal data

visualization schemes for such datasets.

- perform basic data processing, curation and visualization using Excel and R-programming.
- demonstrate basic skills with regards to large dataset visualization in oral and written format.
- describe and discuss the prevalence and trends of diet-related global diseases and their determinants, with focus on diet and physical activity.
- identify and describe available surveillance and monitoring tools and datasets for lifestyle-related global diseases and disease determinants.
- apply the earned knowledge to produce and present a scientific poster based on relevant research and surveillance efforts.

Part 2: Interventions and digital health, 8 credits

After completing the course, the student should be able to:

- design and plan and evaluate an intervention in nutrition and physical activity, based on existing evidence and theories of behavioural change and apply the steps according to the chosen methodological model.
- critically analyze and discuss intervention studies in terms of study design, theoretical basis, statistics, ethics and interpretation of results, with special emphasis on interventions that utilize digital health.
- suggest and plan for the carrying out and evaluation of an intervention study in nutrition and physical activity.
- write a study protocol describing the proposed intervention study (background, method and discussion).
suggest and motivate a suitable implementation framework for the suggested study.
- identify and suggest different funding opportunities for different types of research projects and health promotion initiatives, and be familiar with the structure of such an application.
- analyze and discuss ethical aspects in relation to intervention studies, based on research ethics theories and principles.
- be familiar with the structure of an ethical application and its governing body.
- apply appropriate statistical tests to analyze data from intervention studies and be able to interpret the results.

Content

The course is divided into two parts that are examined and graded separately, comprising 7 and 8 credits, respectively.

Monitoring of non-communicable diseases, large-scale data collection, analyses and data visualizations, 7.0 hp

Grading scale: VU

Part 1 deals with large-scale and local management of global public health diseases, their prevalence, trends and determinants, with focus on diet and physical activity. Different surveillance and monitoring tools, as well as data visualization schemes for these diseases will be introduced. The teaching will include discussions on relevant organizations, policy documents and action plans, as well as practical, technological examples of modern integrated data collection, visualisation and automatic recommender systems, applicable at both population and individual level, with focus on the field of public health nutrition. Teaching will focus on deployment requirements for appropriate disease monitoring data collection, requirements for appropriate data management and visualization, as well as ways of presenting disease monitoring outcomes in scientific terms. To achieve the above, the students will be introduced to mainstream data analysis, processing and visualization tools. The use of AI analytics in health science and nutrition will also be introduced during the course.

Interventioner och digital health, 8.0 hp

Grading scale: VU

Part 2 aims to give the student a deeper understanding and knowledge in intervention studies in the field of nutrition and physical activity, especially interventions that use tools in digital health (eHealth and mHealth). The course will cover study planning, study design (randomized controlled trials), and evaluation (data analyses and interpretation of results). During the course, the students will write a study protocol for a randomized controlled intervention study. The course will discuss how to develop the components of an intervention, which methods that are used to measure outcome measures, and how to evaluate the effectiveness of the intervention. The students present their study and may also object to another group's study. This course will also cover behaviour change models and techniques, such as motivational interviewing. The course also deals with different funding opportunities for research projects and health promotion initiatives and how such an application is structured.

Teaching methods

This course consists of seminars, group work, lectures, exercises and discussions and opposing on another groups project plan.

Examination

The examination of part 1 consists of active participation in group work (graded Pass/Fail) and two individual assignments (graded Pass/Fail and Pass with distinction/Pass/Fail, respectively). Grading of part 1 is based on the individual assignment graded Pass with distinction/Pass/Fail. The examination of part 2 consists of a written exam (graded Pass/Fail), and a group work (graded Pass/Fail) and an individual written report (graded Pass with distinction/Pass/Fail). Grading of part 2 is based on the individual written report. For grade Pass with distinction on the entire course, grade Pass with distinction on part 1 or part 2 is required. To pass the course, all assignments must fulfil the criteria for Pass. The grading criteria for all examinations are provided on Canvas.

In the case a student fails an assignment, the individual assignment can be complemented to get a Pass on that individual assignment. The assignment can be resubmitted a maximum of five more times. After six failed assignments, no further examination opportunities will be given for that assignment. If the student has not submitted complementation at given deadline, grade Fail is given. A student who has failed two examinations for a course or part of a course, is entitled to have another examiner appointed unless special reasons speak against it.

Compulsory participation:

Assignments and seminars are compulsory. The examiner assesses if and, in that case, how absence from compulsory parts can be compensated. Before the student has participated in all compulsory parts or compensated absence according with the examiner's instructions, the student's study results cannot be finalized. Absence from a compulsory activity may result in that the student cannot compensate absence until the next time the course is given.

If there are special reasons, or need for adaptations for a student with a disability, the examiner may decide to depart from the syllabus's regulations on examination form, number of examination opportunities, possibility of complementation or exemption from compulsory activities, etc. Content and learning outcomes as well as the level of expected skills, knowledge and abilities must not be altered, removed or lowered.

Other directives

The course language is English.

This course replaces the course Diet, physical activity and disease prevention - interventions, mHealth

and eHealth, 15 credits (4NT003) and cannot be included in a degree together with the latter course.

Literature and other teaching aids

Reports, articles and other prescribed literature are listed at course start and will be available electronically.