

You begin to specialise in the second year of your studies by choosing one of the five specialisations. Your choice should be based not only on your interests, but also on the master's programme you intend to follow and your career plans. The study advisors of the faculty can help you make an appropriate choice.



Digital Technology and Care

Technological developments transform healthcare: from applications such as eHealth, robotics, smart home devices, Internet of Things to management information systems.

These new technological developments not only change the quality of care for patients but also change the daily work of healthcare professionals. However, the successful implementation of these applications doesn't go without a struggle. Often, the people who invent and develop technology are not the ones who are going to use it every day. Since future technological innovations are going to keep transforming healthcare, we need to 'close the gap' between IT specialist and technology developers and healthcare. We are in need of 'linking pins'!

Within the *Digital Technology and Care* specialisation, you will study the following topics at an academic level:

How can we limit the gap between the worlds of IT and healthcare?

What is the impact of eHealth applications in and outside healthcare organisations?

How can technological innovations be implemented to improve quality of care?

How do you ensure that healthcare organisations are 'innovation ready' regarding technological innovations?

What role do Artificial Intelligence, Big Data and Datascience play in future healthcare?

What role does ethics play regarding technology in healthcare?

What does the constant development of technology entail for our society and our healthcare?

Is knowledge of technology and ICT necessary?

Certainly not! You enter as a basic health scientist, and not as a computer science student. It is still the Health Sciences programme: you learn a lot about healthcare, but also the basics of programming. In principle, you can start this specialisation without any technical knowledge, but a

little involvement is useful.

In your future career, you are the 'linking pin' - the bridge builder - who on the one hand understands where current and future challenges lie in healthcare, and on the other hand can propose, (co)develop, implement and evaluate technological solutions and possibilities to address these challenges. The question that you will always keep in mind is therefore: "How can the development and implementation of new technological innovations improve the quality of healthcare and what is needed to achieve this?"

You will probably work at organisations and institutions that are working on their digital transformation. As an expert in both ICT and healthcare, you are ideal to lead this process. This is possible at hospitals, general practitioners, mental healthcare institutions and other healthcare institutions, but also at ICT companies, for example.

Biology and Health

Biology and Health is focused on how nutrition, exercise and the environment effect the development of diseases. You learn how biological systems and structures try to keep the body healthy, and how various external factors can impair and unsettle bodily functions. This requires a basic biological knowledge as well as epidemiology, behavioural sciences and medicine. You explore issues like:

- Is the incidence of certain health problems rising or dropping?
- What are the reasons and what are the implications for this?
- What can we do to prevent certain problems and what is the best way to study them?

Mental Health Sciences

Within the track *Mental Health Sciences* you study the biological, psychological and social cultural aspects of psychopathology. The latter includes disorders such as depression, neuropsychological disorders such as dementia, developmental disorders such as autism and ADHD and anxiety disorders such as phobias.

As a Mental Health student at the UM, you study the causes of these disorders and the factors involved. What makes the programme unique is that you also get trained in diagnostic skills (determining whether someone is suffering from a disorder) and therapeutic skills (treatment methods). These training courses are based on knowledge and experience from the GGZ work field.

Policy, Management and Evaluation of Health Care

During the *Policy, Management and Evaluation of Health Care* track, you learn how to get to the bottom of complex connections in health care. You learn how health care is organised, which (future) care issues need to be solved and how you can contribute as a health scientist. Examples of questions that get addressed are:

- What forms of formal and informal care do patients come into contact with?
- How is healthcare financed and organized in the Netherlands (and in other countries)?
- What is the quality of health care and how can it be improved?
- How can entrepreneurship lead to effective innovations and how can they be implemented?

You approach these issues from research; you learn different research methods for this and study articles. In addition, practical contacts have been planned, which means that you also come into contact with patients, healthcare professionals, managers, administrators, policy makers and insurers.

Prevention and Health

Many diseases could be prevented if people change their behaviour. But how do you change behaviour? You can tell people that smoking is bad for them, but it won't make them stop. The information leaflets are never read, and people's surrounding often forms another obstacle. *Prevention and Health* focuses on three pillars:

- to prevent people from becoming ill;
- to identify the early signs of disease, thereby enabling early treatment;
- to teach people who are ill to cope with their illness so that they can live as full a life as possible.

Major

Courses

Fac. Health, Medicine and Life Sciences

Lifelong Health

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

GZW1021

Period 1

4 Sep 2023

27 Oct 2023

[Print course description](#)

ECTS credits:

8.0

Instruction language:

Dutch

Coordinator:

Bachelor Health Sciences

- [C.J.A.W. van Gool - de Vrede](#)

Fac. Health, Medicine and Life Sciences

Health Issues and The Role of Public Health

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

GZW1022

Period 2

30 Oct 2023

22 Dec 2023

[Print course description](#)

ECTS credits:

10.0

Instruction language:

Dutch

Coordinator:

- [M.H.C. Bleijlevens](#)

Fac. Health, Medicine and Life Sciences

Introduction into Scientific Research Methods

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website.

GZW1023

Period 3

8 Jan 2024

2 Feb 2024

[Print course description](#)

ECTS credits:

6.0

Instruction language:

Dutch

Coordinator:

- [M.J.L. Bours](#)

Fac. Health, Medicine and Life Sciences

Health, Eating and Physical Activity

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

Recommended reading

Bernstein, D. A., Penner, L. A., Clarke-Stewart, A., & Roy, E. J. (2012). Psychology (Ninth Edition, International Edition). Wadsworth, Cengage Learning. Lieberman, D. E. (2014). The story of the human body: Evolution, health, and disease. New York: Vintage Books Mc Ardle WD, Katch FI and Katch VL. (2015) Exercise Physiology: Energy, Nutrition, and Human Performance, 8th edition. Lippincott, Williams & Wilkins. Bilman, E., van Kleef, E., & van Trijp, H. (2017). External cues challenging the internal appetite control system—Overview and practical implications. Critical reviews in food science and nutrition, 57, 2825-2834. De Ridder, D. (2011). De grote voedselverleiding: over de psychologie van het eten. Amsterdam: Bert Bakker.

GZW1024

Period 4

5 Feb 2024

5 Apr 2024

[Print course description](#)

ECTS credits:

8.0

Instruction language:

Dutch

Coordinator:

- [T.C.M. Adam](#)

Teaching methods:

Assignment(s), Work in subgroups, Lecture(s), Paper(s), PBL, Presentation(s), Research, Skills, Training(s)

Assessment methods:

Assignment, Attendance, Final paper, Participation, Portfolio, Written exam

Fac. Health, Medicine and Life Sciences

(Taking) Care for Health

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

GZW1025

Period 5

Bachelor Health Sciences

8 Apr 2024

7 Jun 2024

[Print course description](#)

ECTS credits:

8.0

Instruction language:

Dutch

Coordinator:

- [R.M.W.A. Drost](#)

Fac. Health, Medicine and Life Sciences

Introduction to Statistical Methods for Data Analysis

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

Recommended reading

- Tan, F.E.S. (2019). Introduction to statistical methods for data analysis with introduction in SPSS (Author: Miranda Janssen)
- Andy Field (2018). Discovering statistics using IBM SPSS statistics, 5th edition, ISBN 978-1-4462-4918-5 (pbk)
- Utts, J.M., Heckard, R.F. (2022). Mind on Statistics, 6th edition, Congage Learning, ISBN 978-1-258-46318-6
- Moore, D.S., McCabe, G.P., Craig, B., Passer, M. (2017). Introduction to the practice of statistics, 9th edition, ISBN 9781464158933

GZW1026

Period 6

10 Jun 2024

5 Jul 2024

[Print course description](#)

ECTS credits:

6.0

Instruction language:

Dutch

Coordinator:

- [S. Jolani](#)

Skills

Fac. Health, Medicine and Life Sciences

Practical Skills Period 1

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

GZW1221

Period 1

4 Sep 2023

27 Oct 2023

[Print course description](#)

ECTS credits:

1.0

Instruction language:

Dutch

Coordinator:

- [C.J.A.W. van Gool - de Vrede](#)

Fac. Health, Medicine and Life Sciences

Practical Skills Period 2

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

GZW1222

Period 2

30 Oct 2023

22 Dec 2023

[Print course description](#)

ECTS credits:

1.0

Instruction language:

Dutch

Coordinator:

- [C.J.A.W. van Gool - de Vrede](#)

Fac. Health, Medicine and Life Sciences

Practical Skills Period 4

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

Bachelor Health Sciences

GZW1224

Period 4

5 Feb 2024

5 Apr 2024

[Print course description](#)

ECTS credits:

2.0

Instruction language:

Dutch

Coordinator:

- [G.H. Goossens](#)

Fac. Health, Medicine and Life Sciences

Practical Skills Period 5

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website.

GZW1225

Period 5

8 Apr 2024

7 Jun 2024

[Print course description](#)

ECTS credits:

1.0

Instruction language:

Dutch

Coordinator:

- [F.H.J. van Tienen](#)

Fac. Health, Medicine and Life Sciences

Orientation on the Field

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

GZW1230

Period 5

8 Apr 2024

7 Jun 2024

[Print course description](#)

Bachelor Health Sciences

ECTS credits:

1.0

Instruction language:

Dutch

Coordinator:

- [R.M.W.A. Drost](#)

Academic Education

Fac. Health, Medicine and Life Sciences

Philosophy-In-Action

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

GZW1242

Period 1

4 Sep 2023

7 Jun 2024

[Print course description](#)

ECTS credits:

3.0

Instruction language:

Dutch

Coordinator:

- [E.S. Raap](#)

Fac. Health, Medicine and Life Sciences

Training Introduction PBL

Full course description

This study programma is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

GZW1243

Period 1

4 Sep 2023

27 Oct 2023

[Print course description](#)

ECTS credits:

1.0

Bachelor Health Sciences

Instruction language:

Dutch

Coordinator:

- [H. Roebertsen](#)

Fac. Health, Medicine and Life Sciences

Academic Writing Skills

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

GZW1241

Period 2

30 Oct 2023

22 Dec 2023

[Print course description](#)

ECTS credits:

3.0

Instruction language:

Dutch

Coordinator:

- [H. Roebertsen](#)

Fac. Health, Medicine and Life Sciences

Qualitative Research

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website.

GZW1244

Period 3

8 Jan 2024

5 Apr 2024

[Print course description](#)

ECTS credits:

1.0

Instruction language:

Dutch

Coordinator:

- [M.E. Knibbe](#)

The Moral Compass of Contemporary Health Researchers and Professionals

Full course description

This FiA-week deals with the question: 'what is a good health scientist?' As researcher, professional or policymaker, health-scientists work in complex networks in which they face question about integrity, conflicting interests, professional conduct, money, norms for success and quality. As individuals, health scientists need to find a way of relating to these questions. To be a 'good health scientist' it is not enough to be skilled and knowledgeable, it is at least as important to have a moral compass and to reflect on this compass. In this FiA-week students reflect on developments in healthcare and research using two normative theoretical perspectives.

Course objectives

Knowledge and insight

After this week, the student has insight in:

- Philosophical theories that are used for analysis and reflection on norms for a good professional, scientist, policymaker and person.

Application of knowledge and insight

After this week the student is able

- To use these theories for an analysis of- and reflection on concrete practices of professionals, scientists, policymakers and one's own experiences.

Forming opinions

After this week the student is able

- To form a judgement about existing practices of health-promotion, science and policy on the basis of these theories, and to support ones position with arguments.

Communication

After this week the student is able

- To give expression to one's own moral compass supported by theoretical arguments in writing.

Recommended reading

[This is the link to Keylinks, our online reference list.](#)

Bachelor Health Sciences

GZW2224

Period 4

5 Feb 2024

9 Feb 2024

[Print course description](#)

ECTS credits:

2.0

Instruction language:

English

Coordinator:

- [M.E. Knibbe](#)

Teaching methods:

Assignment(s), Lecture(s), Paper(s)

Assessment methods:

Assignment, Attendance, Final paper

Keywords:

moral philosophy, ethics

Fac. Health, Medicine and Life Sciences

(International Classroom): Sapere Aude

Full course description

Introduction

This Philosophy in Action (PhiA) week of the second year is devoted to the book project. Students read an academic book and write a book review. In this book-review they identify and present the central line of argumentation, any relevant key-concepts of the book, as well as its main narrative. In addition they critically reflect on the content and the argument of the book and embed it in a broader context. To this end, students make use of the reflective capacities, they have developed during the previous PhiA weeks.

Students choose from a pre-given list of books, covering topics interesting and relevant for all four streams. During the week, they follow a lecture (general) on the relevance of academic books, the difference with academic journal articles and academic books and on the role and relevance of book-reviews. In two practical's, students discuss the book under the supervision of a teacher and together with fellow-students. Based on these discussions and on a guideline on how to write a book-review, students individually write a book review.

Procedure

During the week students read the book, gather surrounding information and write a book review. In addition, they collect and read additional literature that supports them in understanding the line of thought developed in the book as well as to embed it into its broader context. Before the start of the PhiA week at the opening lectures of the PhiA week in block 2.4. the book-project will be briefly introduced and students will be presented with a list of books from which they can choose. All students are requested to have a version of their book at their disposal at the beginning of the PhiA week.

Course objectives

Knowledge and insight

- Students gain insight in the relevance of academic books and book-reviews.
- Students gain insights in their book of choice and the line of thought and argument developed therein.

Application of knowledge and insight

- Students can identify the content, central concepts and main line of thought of their chosen book.
- Students can embed the content of their chosen book in a broader context of health science in general and their stream in particular.

Formation of judgement

- Students are able to formulate a critical evaluation of the relevance and possible limitations of their book. They base this evaluation on their knowledge gained in previous PhiA courses, previous health science courses and further own reflection.

Communication

- Students can present in writing the content, central concepts and main line of thought of their book in a clear way.
- Students can found their critical evaluation by means of clear and adequate arguments.

Evaluation

- Presence and active participation during the practicals
- Grading of the individual assignment (fail, pass, good, excellent)

Recommended reading

[This is the link to Keylinks, our online reference list.](#)

GZW2225

Period 5

8 Apr 2024

12 Apr 2024

[Print course description](#)

ECTS credits:

1.0

Instruction language:

English

Coordinator:

- [D. Horstkötter](#)

Teaching methods:

Work in subgroups, Lecture(s), Paper(s), Skills

Assessment methods:

Attendance, Final paper, Participation

Bachelor Health Sciences

Keywords:

academic books, book review, Critical Thinking

Fac. Health, Medicine and Life Sciences

FIA Jaar 2 (Basisvariant)

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

GZW2260

Period 1

2 Oct 2023

3 Nov 2023

[Print course description](#)

ECTS credits:

3.0

Instruction language:

Dutch

Coordinator:

- [E.S. Raap](#)

Biology and Health

Fac. Health, Medicine and Life Sciences

Homeostasis

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

BGZ2021

Period 1

4 Sep 2023

27 Oct 2023

[Print course description](#)

ECTS credits:

9.0

Instruction language:

Dutch

Coordinator:

- [H.E. Popeijus](#)

Practical Skills Homeostasis

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website.

BGZ2221

Period 1

4 Sep 2023

27 Oct 2023

[Print course description](#)

ECTS credits:

1.0

Instruction language:

Dutch

Coordinator:

- [H.E. Popeijus](#)

Teaching methods:

Assignment(s), Lecture(s), Paper(s), PBL

Assessment methods:

Assignment, Participation, Presentation

Fac. Health, Medicine and Life Sciences

The Continuity of Life

Full course description

This study programma is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

BGZ2022

Period 2

30 Oct 2023

22 Dec 2023

[Print course description](#)

ECTS credits:

10.0

Instruction language:

Dutch

Coordinator:

- [A.M. van den Beucken](#)

Assessment methods:

Practical Skills The Continuity of Life

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

BGZ2222

Period 2

30 Oct 2023

22 Dec 2023

[Print course description](#)

ECTS credits:

1.0

Instruction language:

Dutch

Coordinator:

- [A.M. van den Beucken](#)

Fac. Health, Medicine and Life Sciences

Attack and Defence

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website.

BGZ2023

Period 3

8 Jan 2024

2 Feb 2024

[Print course description](#)

ECTS credits:

5.0

Instruction language:

Dutch

Coordinator:

- [K.H.J. Gaens](#)

Fac. Health, Medicine and Life Sciences

Practical Skills Attack and Defence

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website.

BGZ2223

Period 3

8 Jan 2024

2 Feb 2024

[Print course description](#)

ECTS credits:

1.0

Instruction language:

Dutch

Coordinator:

- [K.H.J. Gaens](#)

Fac. Health, Medicine and Life Sciences

Food for Life

Full course description

A healthy diet is a diet with a nutrient composition that results in an optimal health, both with respect to macronutrients (carbohydrates, fats and proteins) and micronutrients (vitamins and minerals). A balanced diet will prevent deficiency diseases like rachitis and osteoporosis. An unhealthy diet is an important risk factor for the development of chronic metabolic diseases like obesity, type 2 diabetes mellitus, cardiovascular disease and several types of cancer. Due to the increasing prevalence of these diseases the topic of nutrition has become an essential part of the bachelor degree health sciences, providing relevant knowledge for a later career in several public and private settings like public health, industry, research and hospitals.

This module focuses on nutrition, and nutrient digestion, how food is converted into energy within our body and how this energy is stored in the form of chemical bounds. An excess or altered intake of the major macronutrients, carbohydrates, fat and proteins may play a role in the development of obesity, diabetes and cardiovascular disease, diseases that are currently reaching epidemic proportions worldwide. It will be discussed how modulation of dietary carbohydrate, fat and protein intake may affect our health and may prevent the development of these chronic metabolic diseases. For an effective and targeted prevention and treatment of disease it is very important to have adequate biomarkers, reflecting either dietary intake and/or risk for the development of disease. In this context, biomarkers of macronutrient intake and disease risk will be discussed

Course objectives

Key competencies:

After this module the student is able to:

1. To describe basic aspects on nutrition, nutrient absorption, transport and storage into energy as well as the involved tissues and pathways.
2. To be able to explain the basic metabolic pathways of nutrient handling.
3. To integrate disturbances in nutrient handling in the etiology of chronic metabolic diseases and to understand the concept of biomarkers of disease risk.
4. To present a self-designed experiment on the relation between diet, energy expenditure and substrate oxidation.

Knowledge and insight in:

After this module the student has knowledge and insight in:

- Nutrition (macro and-micronutrients), emphasis on macronutrient metabolism, but role of micronutrients (vitamins, minerals) will also be addressed:
 1. Different types of carbohydrates (monosacharides, disaccharides and polysaccharides, available and indigestible carbohydrates), fats (simple lipid, compound and derived lipids, unsaturated and saturated fatty acids).
 2. Chemical composition, food sources and list the general functions of macronutrients within the body.
 3. What dietary macronutrient composition is and what the recommendations are.
 4. General classification of vitamins in water soluble and fat soluble.
 5. Knowledge of the function of water and fat soluble vitamins and the broad role of minerals in macronutrient catabolism and anabolism.
- Physiology and anatomy of the gastro-intestinal tract;
- Nutrient absorption, transport and storage into energy as well as the involved tissues and metabolic pathways:
 1. Carbohydrate digestion and absorption, transport from in the blood, storage and metabolic pathways (involved in transport, oxidation and storage).
 2. Role of carbohydrate as energy source, protein sparer and central nervous system fuel.
 3. Blood glucose regulation.
 4. Fat digestion and transport (dietary fats and endogenous fats), fat storage and involved metabolic pathways.
 5. Protein digestion and absorption, transport and the involved metabolic pathways, protein turnover, deamination and transamination, nitrogen balance, urea cycle.
 6. Integrative view of regulation carbohydrate, protein and fat metabolism during fasting and postprandial conditions.
- Disturbances in macronutrient handling in the etiology of chronic metabolic disease (obesity and obesity-associated insulin resistance, cardiovascular disease):
 1. Disturbed blood glucose regulation, hyperglycemia and diabetes.
 2. Disturbed lipoprotein metabolism in cardiovascular disease.
 3. Disturbed adipose tissue, liver and muscle fat storage in insulin resistance and chronic metabolic diseases.
- The application of biomarkers in epidemiological research, biomarkers of disease risk;
- Basic principles of the measurement of dietary intake and dietary status;
- Insight in the design and most important component of dietary intervention research.

Application of knowledge and insight:

After this module the student is able to:

- Understand the process of carbohydrate, fat and protein digestion transport and further metabolism and the interaction with diet and bioactive substances;
- Understand the relationship between disturbances in blood glucose regulation, lipoprotein metabolism and fat storage in the etiology of chronic metabolic disease;
- Understand the use of biomarkers , the sources of variation and the application of biomarkers in epidemiological research;
- Understand the design and relevant factors for a dietary intervention study.

Forming opinions:

After this module the student is able to form an opinion on:

- The importance of food, and nutrient handling in health and disease.

Communication:

After this module the student can express knowledge and insight:

- With respect to giving an overview of the metabolic pathways involved in substrate handling and storage and is able to make an animation/movie to explain one of the metabolic pathways in more detail.

Learning skills:

After this module the student has skills to:

- Find arguments, using the recommended literature, to support a certain point of view;
- Combine and integrate knowledge from different metabolic pathways in relation to diet and apply this knowledge towards relevance for chronic metabolic diseases and related preventive strategies.

Recommended reading

[This is the link to Keylinks, our online reference list.](#)

BGZ2024

Period 4

19 Feb 2024

5 Apr 2024

[Print course description](#)

ECTS credits:

9.0

Instruction language:

English

Coordinator:

- [R.C.R. Meex](#)

Keywords:

Narrative Review BGZ

Full course description

In the bachelor Health Sciences, the students study a broad variety of topics to reach a general understanding on many aspects of health. This way, they discover which topics they find interesting, and that should help in making the right choices in the rest of their career. The downside of offering a broad selection of topics is that it is impossible to reach deep understanding on all these topics. Deep understanding means that the student can understand state-of-the-art studies on a specific topic, and can see the implications of that research. This information cannot be found in regular textbooks, since the research presented in these books is often already more than 5 years old. Therefore, we designed a parallel module, which aims to give students the opportunity to investigate a topic in depth. To investigate a topic thoroughly, the student needs time and expert guidance, because in-depth guidance is only possible if the instructor is a specialist in the field. So, we designed journal clubs and a writing assignment, covering a whole semester, where you are guided by fellow students and an expert in the field.

During the second semester of the 'Biology and Health' track, the students meet in tutorial groups every two weeks, under supervision of an expert tutor. During period 4 the students can first acquire a deeper understanding in the topic of their choice by means of journal clubs. During period 5 and 6, each student individually writes a narrative review. All students within a tutorial group write on the same topic and that topic fits to the expertise of the expert. Likewise, the students can best reflect on their own work if the other students in the group work on the same topic. However, although everybody writes on the same topic, each student should write his or her own review. All members of the group should become experts on the topic. They should be able to judge their own work and that of others and lift the knowledge of the whole group to a higher level. Experience has taught us that we should not be afraid that the produced work is too similar. If ten students start investigating and writing, each will end up with a unique product.

Additionally, an English Writing Course is incorporated in the Narrative Review Training. In one lecture and two tutorial meetings experts from the Language Centre will help the students to improve their English writing skills. They will also provide feedback on the draft versions of the narrative review.

Course objectives

To investigate the scientific literature to such an extent that gaps in our knowledge can be identified and new hypotheses can be formulated, and to describe this in a manuscript that adequately summarizes the literature.

1. Getting familiar with biomedical publications and literature searches
2. Understanding and analyzing biomedical publications
3. Learn to write a scientific literature review
4. To improve writing in (scientific) English language

Recommended reading

[This is the link to Keylinks, our online reference list.](#)

BGZ2241

Period 4

19 Feb 2024

5 Apr 2024

[Print course description](#)

ECTS credits:

3.0

Instruction language:

English

Coordinator:

- [S.A.S. Langie](#)

Teaching methods:

Work in subgroups, Paper(s), Research, Lecture(s), PBL, Presentations, Training(s)

Assessment methods:

Assignment, Attendance, Final paper, Participation

Keywords:

Narrative review Expert guidance state-of-the-art critical reading

Fac. Health, Medicine and Life Sciences

Use It or Lose It

Full course description

In this module the two key topics are the musculoskeletal system and the relationship between physical (in)activity and health.

Musculoskeletal system

This module will focus on basic anatomy, histology, physiology and function of muscles, bone and joints. The main topics that will be addressed include structure and function of muscles, bone and joints as well as their cooperation in movements and the different types of contraction (concentric, eccentric and isometric). Muscle metabolism including energy production and substrate utilisation, and neuromuscular and hormonal control will also be subject of this module. This will serve as a stepping stone to exercise physiology and collaboration of different body systems in physical activity and sport. The relationship between the cardiovascular, pulmonary and musculoskeletal systems will be elucidated, with particular focus on the integration towards physical activity and exercise training

Physical (in)activity and health

In this part of the module the relationship between physical activity and health will be elucidated. The importance of physical activity for (maintenance of) health status of healthy people as well as for those who are at risk for developing disease conditions (e.g. overweight, high body mass index, disturbed glucose metabolism, hypertension etcetera) will be addressed. A number of disease conditions that are beneficially affected by physical activity will be addressed in this module, with

emphasis on the patho-physiological processes how physical activity and exercise training influence these disease conditions.

For a better understanding of the aforementioned issues exercise physiology will be taught thoroughly, both the acute response during exercise but also the adaptation to regular physical training. Moreover, the translation of training adaptations to health improvement will be part of the module.

Much attention will be paid to norms and guidelines for recommended quantities and qualities of physical activity and fitness. Several measurement methods, including calorimetry, pedometers, questionnaires, dairies will be assessed on their validity and reliability. We will go into the recommendations on physical activity for improvement and maintenance of health and fitness. It is of importance to know what kinds of physical activity intervention programs are available, but also to assess how valid the effectiveness of these programs is. And do they yield what they claim? Going more in depth on physical activity in this module substrate and energy utilisation will be discussed and assessed practically.

From a policy point of view it is important to learn about epidemiologic data on physical activity and sports participation behaviour of Western populations, particular of the Dutch. How did this develop through the last century and which factors influence this behaviour. We will go into the impact of alterations of physical activity and sports participation on morbidity and mortality risks as well as on experienced physical and mental health. The students will obtain insight in epidemiological data on physical activity and sports participation data. Also, in this module the determinants of life style behaviour alterations will be studied. Finally, substrate and energy utilisation in rest and during physical activity, both in theory and practice, will be addressed.

Course objectives

Knowledge and insight

The student will obtain knowledge of and insight in: § Anatomy, histology and physiology of muscles and skeleton § Exercise physiology and energy metabolism § Performance (endurance, strength, speed, flexibility, coordination) § Training and adaptation (muscles, skeleton, metabolism) § The relationship between (excessive) physical (in-)activity, health and health risks § Determinants of physical activity and fitness for susceptibility of diseases § (Interpretation of) descriptive data of the relationship between physical activity and health § Basic principles of substrate and energy utilisation § Basic principles of physical activity measurements § Basic principles of performance measurements (endurance, strength, speed, flexibility, coordination) § Validity and reliability of measuring substrate and energy utilisation, physical activity and performance

Application of knowledge and insight

After completion of this module the student will be able to: § Apply the relationship between the musculoskeletal system and movements/physical activity § Translate the contribution of the musculoskeletal system and physical activity to health status § Interpret statistical data about health and disease and indicate which factors and action are important to influence these data § apply the recommendations of physical activity and exercise training in prevention and rehabilitation of chronic disease conditions § provide information about the value of different determinants of health § provide information about the recommended physical activity for improving health and fitness

Judgement

After completion of this module the student should have developed a critical attitude towards: § The

Bachelor Health Sciences

contribution of physical (in)activity for health status and maintenance § The recommendations of physical activity and exercise training for health status and maintenance § The recommendations § The validity and reliability of the various measurement tools to assess quantity and quality of physical activity

Communication

After this module the student will be able to: § Adequately report the execution of a practical assignment § Adequately report the results of practical assignments § Adequately report to and inform others about the recommended quality and quantity of physical activity for health status and maintenance § Discuss on a scientific level about the results of a practical assignment

Skills

The student will be able to: § Measure energy utilisation in rest § Interpret basically the measurement of energy utilisation during exercise § Assess the validity and reliability of the various measurement methods § Assess the usefulness of these measurements § Measure physical activity of a person via various measurement tools § Interpret the physical activity measurements via various measurement tools adequately

Recommended reading

[This is the link to Keylinks, our online reference list.](#)

BGZ2025

Period 5

8 Apr 2024

7 Jun 2024

[Print course description](#)

ECTS credits:

10.0

Instruction language:

English

Coordinator:

- [B.C. Bongers](#)

Teaching methods:

Assignment(s), Lecture(s), Work in subgroups, Paper(s), Presentations, Skills, Training(s), Working visit(s)

Assessment methods:

Assignment, Attendance, Participation, Presentation, Written exam

Keywords:

Musculoskeletal - physical (in)activity - exercise - training - exercise physiology - chronic disease - health - fitness

Fac. Health, Medicine and Life Sciences

The Basic Principles of Pharmacology

Full course description

The module's subjects will be provided in an integrative setting of PBL cases, lectures and practical trainings. The PBL cases will be amended by lectures which also hook up with topics of this module and prior modules. The presentation of a real patient case illustrates how pharmacology is implemented in clinical practice. An important part of this module consists of a practical in which students perform a clinical trial on the effects of nutrients on the kinetics of a drug. This practical will be completed by an assignment. The results of all other practicals will be presented and discussed in the tutorial group meetings enabling their seamless embedding in the other block's subjects. This module provides an introduction into the basic principles of pharmacology and toxicology. Pharmacology and toxicology deal with the effects of biologically active compounds on (patho)physiological processes.

The disciplines are subdivided into two general subjects: (1) pharmacodynamics, which assesses the effects of a compound in the human physiology, and (2) pharmacokinetics, which assesses the fate of a compound in the human body. Both subjects determine the therapeutic effectivity and toxicity of a drug in humans and are influenced by genetic factors like polymorphisms in genes of drug metabolizing enzymes and by the concomitant intake of nutrients. Also subjects like drug development (preclinical and clinical phases) and the set-up of a clinical trial protocol for medical-ethical approval are covered.

Course objectives

The student is able to:

1. describe the basic principles of pharmacodynamics, pharmacokinetics and drug development.
2. explain the effects of nutrients and genetic polymorphisms on the action of drugs.
3. calculate basic pharmacodynamic and pharmacokinetic parameters and to use them for the prediction of drug action.
4. discuss the design and execution of clinical trials to investigate the efficacy of drugs.
5. evaluate clinical trial data and present them to qualified persons so that they can follow and understand the outcomes and conclusions.

Recommended reading

[This is the link to Keylinks, our online reference list.](#)

BGZ2026

Period 6

10 Jun 2024

5 Jul 2024

[Print course description](#)

ECTS credits:

5.0

Instruction language:

English

Coordinator:

- [G.J.M. den Hartog](#)

Teaching methods:

Assignment(s), Work in subgroups, Lecture(s), PBL, Research, Skills, Training(s)

Bachelor Health Sciences

Assessment methods:

Assignment, Attendance, Participation, Written exam

Keywords:

Pharmacokinetics, ADME, Pharmacodynamics, Receptor, toxicity, polymorphism, Clinical study, drugs

Fac. Health, Medicine and Life Sciences

Human and Health: Biologically Researched

Full course description

This study programma is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

BGZ3025

Period 5

8 Apr 2024

8 May 2024

[Print course description](#)

ECTS credits:

6.0

Instruction language:

Dutch

Coordinator:

- [S.J.P.M. Eussen](#)

Policy, Management and Evaluation of Health Care

Fac. Health, Medicine and Life Sciences

Care in Context

Full course description

This study programma is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

BMZ2021

Period 1

4 Sep 2023

27 Oct 2023

[Print course description](#)

ECTS credits:

9.0

Instruction language:

Dutch

Bachelor Health Sciences

Coordinator:

- [B.S. de Boer](#)

Fac. Health, Medicine and Life Sciences

Practical Skills Care in Context

Full course description

This study programma is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

BMZ2221

Period 1

4 Sep 2023

27 Oct 2023

[Print course description](#)

ECTS credits:

1.0

Instruction language:

Dutch

Coordinator:

- [B.S. de Boer](#)

Fac. Health, Medicine and Life Sciences

Scarcity in Healthcare

Full course description

This study programma is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

BMZ2022

Period 2

30 Oct 2023

22 Dec 2023

[Print course description](#)

ECTS credits:

11.0

Instruction language:

Dutch

Coordinator:

- [M.J.C. Hiligsmann](#)

A Look at Care

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

BMZ2023

Period 3

8 Jan 2024

2 Feb 2024

[Print course description](#)

ECTS credits:

6.0

Instruction language:

Dutch

Coordinator:

- [D.F.L. Hertroijs](#)

Fac. Health, Medicine and Life Sciences

Improving Quality of Care

Full course description

Quality of care (QoC) has become more important to all involved in the chain of care (providers as well as purchasers). Providers have begun to be interested in evidence-based medicine and purchasers have begun to focus on the cost-effectiveness of health care in producing health outcomes (Mainz, 2003). Consumers of care demand high-quality levels of care.

This unit focuses on the assessment and management of the quality of care. Factors (micro, meso and macro level) that influence the quality of care will be addressed from different perspectives. Questions addressed in this module include: What is QoC in theory and practice? How to develop effective interventions? Is high quality of care expensive? How to improve the QoC? Do consumers have a different view about quality in comparison to providers? How is care ideally organized to optimize the quality?

Course objectives

Knowledge and insight

The students acquire knowledge and understanding about:

- The concept/theory on QoC;
- QoC assessment;
- QoC management;
- The concept of evidence based healthcare;

- Quality indicators;
- Factors (micro, meso and macro level) that influence the QoC;
- Different perspectives on quality of stakeholders involved in the chain of care;
- The development, testing and evaluation (effect, process and cost) of evidence based interventions to improve the QoC;
- Frameworks that can be helpful to development, testing and evaluation (effect, process and cost) of evidence based interventions;
- How the organization of care (integrated care) contribute to the quality of care;
- How to gain scientific evidence and the role of systematic reviews in relation to QoC.

Application of knowledge and insight

After this module the students are able to:

- Critically judge the QoC provided;
- Critically judge scientific articles (for example publication of an review);
- Critically judge QoC assesment and management;
- Critically judge the development, testing and evaluation (effect, process and cost) of evidence based interventions to improve the QoC;
- Reflect on the aspects of integrated care in relation to QoC.

Forming opinions

After this module the students:

- Have a critical attitude on evidence based care and the application in health care practice;
- Can form and describe opinions on the quality of care provided in an organization from the perspective of different stakeholders involved;
- Can form and describe opinions on indicators used to assess quality;
- Can link theory and practice in relevant areas of the module.

Communication

After this module the students:

- Are able to write and present about improving care based on scientific evidence gathered in a review;
- Are orally be able to give feedback in the tutorial and study team meetings;
- Are able to communicate his/ her opinion orally during a debate on QoC.

Learning skills

The students are able to:

- Handle relevant information on cases discussed in the tutorials;
- Identify issues related to the quality of health care, including its measurement, assessment, management and improvement;
- Collaborate with other students in the tutorial groups;
- Relate theory to practice on QoC.

Recommended reading

[This is the link to Keylinks, our online reference list.](#)

Bachelor Health Sciences

19 Feb 2024

5 Apr 2024

[Print course description](#)

ECTS credits:

10.0

Instruction language:

English

Coordinator:

- [S.F. Metzelthin](#)

Teaching methods:

Assignment(s), Lecture(s), Work in subgroups, Paper(s), PBL, Presentations, Training(s), Working visit(s), Patient contact, Research, Skills

Assessment methods:

Attendance, Final paper, Written exam

Keywords:

Quality improvement, assessment, perspective of stakeholders, intervention research, care cost
Fac. Health, Medicine and Life Sciences

Entrepreneurial Management in Healthcare

Full course description

The healthcare sector struggles with financial and quality demands and finds it difficult to respond to these changing societal demands. It seems that the health sector could benefit from entrepreneurial management: it is not only important to do the things right but also to do the right things. It is becoming increasingly important for Health Service Organisations (HSOs) and Health Professionals (HPs) to combine the efficient utilization of skills and resources with an effective advancement of new services to address emergent or future needs. For this, HPs and HSOs need (1) entrepreneurial capabilities to develop value propositions, and (2) organisational and managerial capabilities to develop these into sustainable endeavours.

To acquire both capacities, the module focuses on stimulating students to understand and develop both in the context of healthcare. In the first part of the course, students work on their entrepreneurial capacities; in the second part of the course, students work on their organisational and managerial capacities. Cognition is built by introducing students to theories, concepts and approaches related to both capacities. Working on two projects develops their skills and spirit. The “value proposition project” is about designing and presenting a healthcare related value proposition. The “organisation and management project” is about crafting and presenting a related development plan. Competition and gamification is used to enhance the realism of both practical projects.

Course objectives

Knowledge and insight

The students acquire knowledge and understanding about:

- The concepts of entrepreneurship and intrapreneurship;
- Organisational and managerial theory.

Application of knowledge and insight

Bachelor Health Sciences

After this module the students are able to:

- Analyse needs and opportunities for creating added value;
- Analyse health services organizations;
- Apply entrepreneurial, organisational and managerial knowledge;
- Design a healthcare related value proposition;
- Design an organisational and managerial plan.

Forming opinions

After this module the students:

- Have a critical attitude on entrepreneurial management and organizations in healthcare;
- Can link theory and practice with respect to intrapreneurial, organisational, managerial capacities (cf. "knowledge and insight").

Communication

After this module the students can express knowledge and insight in:

- Writing and oral communication;
- Working in a team and project setting.

Learning skills

The student has the skills to:

- Gather relevant information;
- Recognize the challenges of entrepreneurial behaviour and spirit in healthcare;
- Recognize the challenges of organizing and managing value in healthcare.

Recommended reading

[This is the link to Keylinks, our online reference list.](#)

BMZ2025

Period 5

8 Apr 2024

7 Jun 2024

[Print course description](#)

ECTS credits:

11.0

Instruction language:

English

Coordinator:

- [J.P.H. Hamers](#)

Teaching methods:

Assignment(s), Work in subgroups, Lecture(s), PBL, Presentation(s), Skills, Training(s)

Assessment methods:

Attendance, Portfolio, Presentation, Written exam

Keywords:

Implementing Innovations in Healthcare

Full course description

The course Implementing Innovations in Health Care focuses on four themes related to implementing innovations in health care:

1. Innovations and the spread of innovations
2. Factors influencing the spread and implementation of innovations
3. Models for implementation
4. Strategies to implement innovations in health care

The first theme covers the concepts related to innovation and the spread of innovations. Innovations can be products or novel behaviours, routines and ways of working, and they differ in perceived advantage, complexity, observability, etc. The spread of innovations can be passive or active. To create a collective starting point several basic concepts are addressed in the first theme. The second theme continues by focusing on factors that are important in the spread and implementation of innovations, either as hampering factors or as facilitating factors. You will gain insight into four areas comprising these factors important in the uptake of innovations, namely the innovation, the actors, the organizations and the outer context. The third theme of this course, models of implementation, stems naturally from the second theme since these factors are important elements in the models for implementation. There are different models for implementation. In this course you will mainly work with the Implementation of Change Model by Grol and Wensing, but it is important to gain insight into other models as well. The fourth and final theme concentrates on strategies and measures that contribute to the implementation of innovations in practice.

To relate theory to practice, you will be introduced to various innovations that are (successfully or unsuccessfully) implemented. Alongside the theoretical activities in the course, you will develop an implementation plan for a care innovation (skills training).

Course objectives

Knowledge and insight

The students acquire knowledge about:

- The concept 'innovation' and attributes of innovation;
- The concepts 'diffusion', 'dissemination' and 'implementation';
- Models for implementation;
- Factors influencing the spread and implementation of innovations;
- Strategies to implement innovations in health care;
- Elements of an implementation plan.

Application of knowledge and insight

After this module the students are able:

Bachelor Health Sciences

- To compare different models for implementation;
- To analyse the context of an innovation for implementation;
- To develop an implementation plan for a care innovation.

Forming opinions

After this module the students:

- Can critically appraise innovations;
- Have a critical attitude on factors influencing the implementation of an innovation in a health care context;
- Have a critical attitude on models for implementation;
- Can link theory and practice in order to develop a realistic implementation plan.

Communication

After this module the students:

- Are able to write and present a realistic implementation plan for a care innovation;
- Are able to communicate relevant findings in relation to learning goals in the tutorial meetings;
- Are able to communicate and collaborate in a constructive and clear manner with fellow students with his/her project group;
- Are able to communicate and collaborate in a constructive and clear manner in project settings and tutorial meetings.

Learning skills

The students have skills to:

- Develop an implementation plan using a model for implementation;
- Recognize the challenges in implementation of an innovation in health care.

Recommended reading

[This is the link to Keylinks, our online reference list.](#)

BMZ2026

Period 6

10 Jun 2024

5 Jul 2024

[Print course description](#)

ECTS credits:

6.0

Instruction language:

English

Coordinator:

- [A.O.E. van den Bulck](#)

Teaching methods:

Assignment(s), Lecture(s), Work in subgroups, Paper(s), PBL, Presentation(s), Skills, Training(s)

Assessment methods:

Bachelor Health Sciences

Attendance, Final paper, Assignment, Participation, Written exam

Keywords:

health care, Implementation, Innovation, implementation plan

Fac. Health, Medicine and Life Sciences

Aan het Werk!

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

BMZ3025

Period 5

8 Apr 2024

8 May 2024

[Print course description](#)

ECTS credits:

6.0

Instruction language:

Dutch

Coordinator:

- [J.C.M. van Haastregt](#)

Mental Health Sciences

Fac. Health, Medicine and Life Sciences

Child and Adolescent Psychopathology

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

GGZ2021

Period 1

4 Sep 2023

27 Oct 2023

[Print course description](#)

ECTS credits:

8.0

Instruction language:

Dutch

Coordinator:

Bachelor Health Sciences

- [C.M.G. Meesters](#)

Fac. Health, Medicine and Life Sciences

The Clinical Interview I

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website.

GGZ2221

Period 1

4 Sep 2023

27 Oct 2023

[Print course description](#)

ECTS credits:

2.0

Instruction language:

Dutch

Coordinator:

- [D. van Heugten - van der Kloet](#)

Fac. Health, Medicine and Life Sciences

Neuropsychological Disorders

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website.

GGZ2027

Period 2

30 Oct 2023

22 Dec 2023

[Print course description](#)

ECTS credits:

9.0

Instruction language:

Dutch

Coordinator:

- [P. Dibbets](#)

Fac. Health, Medicine and Life Sciences

The Clinical Interview II

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

GGZ2222

Period 2

30 Oct 2023

22 Dec 2023

[Print course description](#)

ECTS credits:

2.0

Instruction language:

Dutch

Coordinator:

- [D. van Heugten - van der Kloet](#)

Fac. Health, Medicine and Life Sciences

Mood Disorders

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

GGZ2022

Period 3

8 Jan 2024

2 Feb 2024

[Print course description](#)

ECTS credits:

6.0

Instruction language:

Dutch

Coordinator:

- [A.F. Domensino](#)

Fac. Health, Medicine and Life Sciences

Research in Psychopathology

Full course description

Research is the keystone to the development of knowledge. This module offers a first experience in conducting scientific research within the domain of psychopathology. Since research starts with curiosity and formulating questions, students will choose a psychopathology topic that has their specific personal interest. They perform a thorough literature search on this topic, and formulate a specific research question. They will select the appropriate study design, perform statistical data analyses, and report their findings in both a scientific research paper and an oral presentation.

The group process and buddy-system are important in this module. During the weekly group meetings, students will actively share, discuss, and reflect about the individual progress in their research under guidance of the course tutor. Topics that are discussed include: searching and selecting appropriate literature, organizing (subsections of) the research paper, processing feedback, importance of ethics in research, selecting and conducting appropriate statistical analyses needed to answer the research question, etc... . In these meetings, there will be ample opportunity to discuss and find solutions to common pitfalls in the empirical research cycle. The buddy system serves to learn how to provide constructive feedback to one another by repeatedly reviewing each other's work.

The course combines diverse learning methods. Weekly 2-hour group meetings are complemented with language center tutorials that focus specifically on scientific writing skills. Plenary lectures provide students with the necessary theoretical background on the empirical research cycle, research methodology, statistics, and ethics in research. Furthermore, mandatory practical sessions are organized throughout the course in which students get hands-on experience with necessary research skills such as conducting a thorough literature search, preparing their data file, running analyses in SPSS, and presenting their research to a broad audience.

Important aspects of course evaluation include active group and buddy participation, as well as attendance during practical meetings and timely submission of practical (writing) assignments. In the third course week, students submit a research proposal containing the outline of their planned research. In the final course week, students report on their research (from theoretical background supporting the research question to interpreting results of analyses and formulating a final conclusion) via a scientific presentation and submission of a full scientific research paper.

Course objectives

To gain knowledge and insight in:

- the empirical research cycle
- different forms of research and their application potential;
- psychopathology-related topic of choice by reading relevant literature;
- statistical methods;
- ethical aspects of research;
- good practices in conducting empirical research in the domain of psychopathology

To gain understanding of:

- advantages and disadvantages of the chosen form of research
- how to apply statistical knowledge on own research data;
- common pitfalls in statistical analyses;
- how to communicate about scientific research in written (full scientific research paper) and

oral (scientific presentation in powerpoint) form.

After this module, students should be well prepared to proceed with and learn more about advanced research skills during their bachelor (and master) trajectory. This module offers a particular good preparation for bachelor (and master) thesis.

GGZ2028

Period 4

19 Feb 2024

5 Apr 2024

[Print course description](#)

ECTS credits:

10.0

Instruction language:

English

Coordinator:

- [L.M.G. Vancleef](#)

Teaching methods:

Assignment(s), Lecture(s), Paper(s), Presentation(s), Research, Skills, Training(s), PBL

Assessment methods:

Assignment, Attendance, Final paper, Participation, Presentation

Keywords:

empirical research cycle; academic writing; statistics; research methods; psychopathology

Fac. Health, Medicine and Life Sciences

Anxiety and Related Disorders

Full course description

In this module the clinical aspects of the various anxiety disorders are presented as well as knowledge of theories and models about the maintenance factors and its treatment implications. In the tasks, case histories of patients with anxiety disorders are arranged according to different focus points. The framework is built using the various anxiety disorders (specific phobia, social anxiety disorders, panic disorder, obsessive compulsive disorder, post-traumatic stress disorder and generalized anxiety disorder). Based on these different anxiety disorders three different theories concerning the etiology and maintenance factors of anxiety are studied, i.e. (1) learning theory, (2) cognitive theory and (3) biological models of anxiety. In addition, treatment implications from these different theories are also studied.

Course objectives

Knowledge and insight

All students acquire knowledge and understanding about:

- Epidemiology and classification of the different anxiety disorders; Learning theory, classical and operant conditioning, applied to anxiety disorders and critical problems of classical conditioning;
- Cognitive models of anxiety disorders with emphasis on biases in cognitive processes in

- anxiety and application of recent cognitive models on each of the anxiety disorders;
- Biological models of anxiety with emphasis on physiological, neuropsychological and psychopharmacological aspects of anxiety;
 - Treatment possibility of anxiety disorders from the three different perspectives;
 - Important research paradigms in anxiety.

Recommended reading

[This is the link to Keylinks, our online reference list.](#)

GGZ2024

Period 5

8 Apr 2024

7 Jun 2024

[Print course description](#)

ECTS credits:

9.0

Instruction language:

English

Coordinator:

- [D.M.L. van Ryckeghem](#)

Teaching methods:

Lecture(s), Work in subgroups, PBL, Skills, Training(s), Working visit(s)

Assessment methods:

Attendance, Written exam

Keywords:

state of the art in treatment and research (paradigms) of anxiety disorders.

Fac. Health, Medicine and Life Sciences

Skills Anxiety and Related Disorders

Full course description

Two separate trainings will be provided, one for Dutch speaking students and one for English speaking students. Communication goals are divided for these two groups.

- To acquire experience in basic therapeutic techniques
- To acquire experience in clinical assessment and psychiatric classification by judging behavioural criteria

Because it is not clear how experienced in clinical skills the foreign students will be, the aims are modest: To become familiar with the classification of psychopathology in the DSM-5; To acquire experience in basic therapeutic techniques; To acquire experience in reporting of psychopathological complaints and psychiatric classification..

Description of the training

For **the English students** clinical skills training is focused on the first interview with a patient, the in

take. Note that this training is not restricted to anxiety psychopathology, but to psychopathology in general.

The Dutch speaking students will follow the skills training “skills anxiety and related disorders”, which is an introduction in behavioral therapy processes. The behavioral therapeutic process comprises several phases that differ from each other. The emphasis of this training is on the first 5 phases of this process. Note that the focus of this training will not be restricted to anxiety, but also to other psychopathology. Students will exercise in their role as therapist. The processes that are focused on are the following: Making a functional analysis; a problem selection; a holistic theory; clustering of the problems and; problem inventory and making a problemlist and making a functional analysis.

The therapeutic skills will be learned in a gradual and systematic manner. Students also get introduced in explaining the rationale and some specific therapeutic techniques. Due to a short time-frame it is not possible to focus on this in-depth.

Course objectives

Dutch speaking students

- Will be able to make a written report of all the behavioral therapeutic processes
- Will have a better view of their own functioning as a therapist
- Will be able to generate a safe environment for the patient
- Will be able to make a functional analysis
- Will be able to make a specific problem selection
- Will be able to make a holistic theory

English speaking students

After finishing this module the English speaking students have become familiar with the classification of psychopathology by means of an anamnesis interview, using DSM-5 classifications; have acquired experience in using basic therapeutic interviewing techniques, and have acquired experience in clinical assessment and psychiatric classification by interpreting their observations.

The knowledge of this module is essential to understand other psychological disorders as personality-, psychotic and somatoform disorders.

Recommended reading

[This is the link to Keylinks, our online reference list.](#)

GGZ2224

Period 5

8 Apr 2024

7 Jun 2024

[Print course description](#)

ECTS credits:

2.0

Instruction language:

- [D. van Heugten - van der Kloet](#)

Teaching methods:

Assignment(s), Lecture(s), Skills, Training(s), Paper(s)

Assessment methods:

Assignment, Observation, Final paper, Attendance, Participation

Keywords:

therapeutic skills, the Structured Clinical Interview of the DSM 5

Fac. Health, Medicine and Life Sciences

Psychodiagnostics

Full course description

Does X suffer from depression? Might Y's longstanding problems in social interactions be explained by an avoidant personality disorder or an autism spectrum disorder? Did Z benefit from therapy for social anxiety disorder?

These are some sample questions for psychodiagnostics in the context of mental health. In general, with psychodiagnostics we aim to describe and explain differences in behavior and to reach informed statements about a person's functioning. In mental health care, the main goal of psychodiagnostics is to gain an understanding of a person's concerns and behavior in order to make a diagnosis, to give treatment recommendations, and to evaluate treatment outcome.

The diagnostic process follows the empirical cycle. First, hypotheses about behavior, cognitive abilities, and emotional functioning are formulated. Next, these hypotheses are operationalized, and tested using a step-by-step diagnostic process. An insight into the scientific principles of testing is essential in order to select, administer and interpret tests adequately, and to combine all the gathered information in a transparent manner to come to a conclusion.

The course on psychodiagnostics mainly seeks to enhance this knowledge at the conceptual level. The emphasis during this block will be on insights and the practical application of psychometric concepts. For example, why is it important that a test is reliable, and how can I assess a test's reliability? Important aspects of decision theory and ethics as applying to psychodiagnostics will also be covered. The practical side of conducting a psychological assessment will only be addressed in a limited sense. You will, however, carry out assignments yourself, in which a link will be made to the psychometric properties, scoring and interpretation of psychological tests.

Course objectives

After following this module, students:

- Have gained insight into the importance of psychodiagnostics in clinical practice, primarily in mental health care;
- Have acquired knowledge about the diagnostic cycle and the psychometric principles of psychodiagnostics;
- Have practiced with administering, scoring and interpreting several psychological tests and questionnaires;

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- Have learned about principles of decision theory as applying to psychodiagnostics;
- Have gained insight into the ethical and cultural aspects of psychodiagnostics;
- Have learned about the writing a psychological report on the complete diagnostic process.

The module Psychodiagnostics consists of plenary lectures about the diagnostic cycle, and about writing a psychodiagnostic report, and group meetings. During the group meetings, there will be hands-on practice with the evaluation of tests on their psychometric properties, and with the scoring and interpretation of the test performance.

Recommended reading

[This is the link to Keylinks, our online reference list.](#)

GGZ2030

Period 6

10 Jun 2024

5 Jul 2024

[Print course description](#)

ECTS credits:

6.0

Instruction language:

English

Teaching methods:

Lecture(s), PBL, Presentation(s)

Assessment methods:

Assignment, Attendance, Final paper, Written exam

Keywords:

Psychodiagnostics; empirical cycle; reliability; validity; psychological questionnaires; cognitive tests; mental health care

Fac. Health, Medicine and Life Sciences

Sexuality

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website.

GGZ3024

Period 5

8 Apr 2024

8 May 2024

[Print course description](#)

ECTS credits:

5.0

Instruction language:

Dutch

Coordinator:

Bachelor Health Sciences

- [M.V.E. Dewitte](#)

Fac. Health, Medicine and Life Sciences

Vormbehoud Klinische Vaardigheden

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

GGZ3225

Period 5

8 Apr 2024

8 May 2024

[Print course description](#)

ECTS credits:

1.0

Instruction language:

Dutch

Coordinator:

- [S.N. Duijvis](#)

Prevention and Health

Fac. Health, Medicine and Life Sciences

Challenges in Public Health

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

PGZ2021

Period 1

4 Sep 2023

27 Oct 2023

[Print course description](#)

ECTS credits:

8.0

Instruction language:

Dutch

Coordinator:

- [K.M.H.H. Bessems](#)

Practical Skills Challenges in Public Health

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

PGZ2221

Period 1

4 Sep 2023

27 Oct 2023

[Print course description](#)

ECTS credits:

2.0

Instruction language:

Dutch

Coordinator:

- [K.M.H.H. Bessems](#)

Fac. Health, Medicine and Life Sciences

Systematic Health Promotion

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

PGZ2022

Period 2

30 Oct 2023

22 Dec 2023

[Print course description](#)

ECTS credits:

10.0

Instruction language:

Dutch

Coordinators:

- [J.S. Gubbels](#)
- [D.N. Zijlstra](#)

Fac. Health, Medicine and Life Sciences

Practical Skills Systematic Health Promotion

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

PGZ2222

Period 2

30 Oct 2023

22 Dec 2023

[Print course description](#)

ECTS credits:

1.0

Instruction language:

Dutch

Coordinator:

- [F.E.K. Schneider](#)

Fac. Health, Medicine and Life Sciences

Health Protection

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

PGZ2023

Period 3

8 Jan 2024

2 Feb 2024

[Print course description](#)

ECTS credits:

4.0

Instruction language:

Dutch

Coordinator:

- [J. Jansen](#)

Fac. Health, Medicine and Life Sciences

Practical Skills Health Protection

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

PGZ2223

Period 3

8 Jan 2024

2 Feb 2024

[Print course description](#)

ECTS credits:

2.0

Instruction language:

Dutch

Coordinator:

- [D.N. Zijlstra](#)

Fac. Health, Medicine and Life Sciences

Disease and Prevention

Full course description

General:

This course is part of the International Classroom and is therefore open to different students, which is why this course will be taught in English. Prevention has different foci: primary prevention aims to remove risk factors for diseases (e.g. stop smoking); secondary prevention is aimed at early disease detection (e.g. breast cancer screening); and tertiary prevention is aimed at timely detection and control of complications when living with disease.

Specifically, this module will address the following:

- Primary prevention of infectious and chronic diseases: you will study the primary prevention of emerging and re-emerging infections (with a focus on risk communication), tuberculosis (with a focus on disease characteristics and outbreak investigation), and the topic of vaccination (with special attention for the role of social media); you will also study cardiovascular disease, including risk management for individuals.
- Genetic screening and diagnosis in the reproductive context: you will study different forms of genetic screening and ethical considerations in the reproductive context (carrier screening, (preimplantation) genetic diagnostics, and prenatal screening).
- Screening for chronic diseases: detecting disease in an early stage may prevent full-blown disease, mortality, and/or rapid progression; this module covers screening for different types of cancer and early stages of dementia.
- Living with disease: you will study diabetes self-management, living with colorectal cancer, and chronic low back pain; the number of people living with these chronic diseases is high and

growing. Life-threatening or disabling chronic diseases requires support and guidance in order to maintain or regain quality of life, prevent recurrence or complications of the disease, and continue participation in society.

- Group project 'disease and prevention: opt for an intervention': students will study a specific disease focusing on its characteristics as these will, in part, dictate which possibilities for prevention exist; there will be a field contact with a disease expert in the Netherlands to gain more in-depth knowledge on the disease, possibilities for prevention, and the issues involved. Products are a group paper and a group presentation. Part of the preparation for the group presentation (in English) will be following the training English Presentation skills which will be in the form of a lecture.

Please note that PGZ2024 must always be followed in combination with PGZ2224 (practical skills). It is not possible to enroll for either one of these courses separately; the total of 10 ECTS credits for PGZ2024 (9 ECTS) and PGZ2224 (1 ECTS) will only be awarded after passing both courses.

Course objectives

Knowledge and insight-

Students acquire knowledge and understanding about: the occurrence, causes, diagnosis, treatment and consequences of a selection of major somatic diseases and mental disorders; the importance of disease characteristics with regard to the choice and contents of measures of disease prevention; the main types of prevention (primary, secondary and tertiary prevention as well as non-selective, selective, indicated and care-related prevention) in the public health context, with emphasis on preventive interventions such as vaccination, screening, shared decision making and informed choice; and the possibilities and impossibilities of disease prevention in the public health context.

Application of knowledge and insight-

After this module the student will be able to apply the obtained knowledge and insight in different situations and different levels, especially with regard to: critical appraisal of the efficacy and suitability of different types of prevention in the public health context; application of the basic principles of epidemiology and prevention to evaluate the probability that preventive activities will be effective; and analyse a disease or disorder on disease characteristics and formulate an advice about the prevention possibilities for this disease or disorder.

Forming opinions-

After this module the students are capable to critically appraise and judge:· different types of preventive interventions;· the choice for a preventive intervention based on disease characteristics;· ethical aspects of disease prevention in the public health context; ethical aspects of different types of preventive interventions.

Learning skills-

You will have skills to: communicate in academic English and· collaborate with other students and public health officials.

Recommended reading

[This is the link to Keylinks, our online reference list.](#)

Bachelor Health Sciences

PGZ2024

Period 4

19 Feb 2024

5 Apr 2024

[Print course description](#)

ECTS credits:

9.0

Instruction language:

English

Coordinator:

- [C.C.J.M. Simons](#)

Teaching methods:

Assignment(s), Lecture(s), Work in subgroups, Paper(s), PBL, Presentation(s), Training(s)

Assessment methods:

Final paper, Presentation

Keywords:

diseases treatment diagnosis prevention screening communication ethics

Fac. Health, Medicine and Life Sciences

Practical Skills Disease and Prevention

Full course description

This module includes the following practicals and skills trainings:

1. Collaboration in Teams: in the field of health promotion, it is of great importance to develop skills that enable you to collaborate constructively and effectively in teams; the topic of collaboration is emphasized in all courses of the Bachelor's program Prevention and Health using different working formats, such as training sessions, games, and reflection assignments; in this module in particular, students will learn about the importance of conflicts in teams and how to deal with conflicts.
2. Is screening on lung cancer useful?: students learn to calculate and interpret different measures related to the effectiveness and consequences of a screening, including the sensitivity, specificity, and predictive values of a test.
3. Health Counseling skills: students will familiarize themselves with the basic principles of health counseling and acquire skills in applying these principles; health counseling techniques in several care settings and for various types of prevention (i.e. primary, secondary and tertiary) will be illustrated and practiced.
4. (Professional) English presentation skills: students receive guidance in how to present a topic in front of an audience convincingly in English; a teacher of the language center will be present during the group presentations (part of PGZ2024) to provide feedback on students' English presentation skills; the training is tailored to all students and will be useful for all levels including native English speakers.
5. Working visit to the Maastricht Study Centre: the Maastricht Study is a large cohort study aimed at investigating complications of diabetes; students will follow a guided tour to learn about what the Maastricht Study entails, to learn about the types of measurements done at the study site, and to see how research is organized in a real-life context of which the results may fuel health promotion initiatives.

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Please note that PGZ2224 must always be followed in combination with PGZ2024 (Disease and Prevention). It is not possible to enroll for either one of these courses separately; the total of 10 ECTS credits for PGZ2024 (9 ECTS) and PGZ2224 (1 ECTS) will only be awarded after passing both courses.

PGZ2024 and PGZ2224 are part of the International Classroom which means these courses are open to different students. PGZ2024 and PGZ224 will therefore be taught in English.

Course objectives

Knowledge and insight

Students acquire knowledge and understanding about: the importance of disease characteristics with regard to choice and contents of measures of disease prevention and the principles of health counseling.

Application of knowledge and insight

After this module the students are capable of applying the obtained knowledge and insights in different situations and different levels, especially with regard to: critical appraisal of the efficacy and suitability of different types of prevention in the public health context; analyse a disease or disorder on disease characteristics and formulate an advice about the prevention possibilities for this disease or disorder; and applying and practicing the principles of health counseling in a counseling session.

Forming opinions

After this module the students are capable to critically appraise and judge: the choice for a preventive intervention based on disease characteristics; ethical aspects of disease prevention in the public health context; and ethical aspects of different types of preventive interventions.

Communication

After this module the students are capable to communicate (in speech and in writing): with colleagues and concerned parties on disease and preventive measures in the public health context and with clients in a health counseling session.

Learning skills

The student has skills to: communicate in academic English; collaborate with other students and public health officials; identify the conflicts that can occur while working in teams; and deal with conflicts while working in teams.

Recommended reading

The basis literature of the modules consists of:

- Detels, R., Gulliford, M., & Karim Q. A. (Eds.) (2015). Oxford Textbook of Global Public Health. Oxford: Oxford University Press.
- Tulchinsky TH, Varavikova EA. The New Public Health. Second Edition. Amsterdam: Elsevier Academic Press, 2009.
- Poster RS, Kaplan JL, Lane KAG, Schindler ST, Short SC, Steigerwald MA. Merck Manual.

Specific literature will be offered through Reference list.

PGZ2224

Period 4

19 Feb 2024

5 Apr 2024

[Print course description](#)

ECTS credits:

1.0

Instruction language:

English

Teaching methods:

Work in subgroups, Skills, Training(s), Working visit(s), Assignment(s)

Assessment methods:

Assignment, Attendance, Final paper

Keywords:

diseases treatment diagnosis prevention screening communication ethics

Fac. Health, Medicine and Life Sciences

Public Health Policy: General Principles Applied to Local Settings

Full course description

In the first four Prevention & Health modules students have become acquainted with (contemporary challenges within) the field of Public Health. Students have learned about health promotion, health protection and prevention. In this 'international classroom' module it will become clear that policy and policy development are very important for creating a good public health as well. Improving public health requires actions and interventions on various levels. This module focuses at the local (municipal, organizational) policy level. What can municipalities do to improve the health of children and citizens living in the municipality? How can they create healthy schools? How can employers make sure that employees stay vital and employable? How can public health professionals convince policy makers, decision makers and politicians that Public Health should be placed on the policy agenda? This is the type of questions which will be answered in this module. The module focuses at Public Health policy, with specific focus on the local policy process (the process in organizations through occupational healthcare, Public Health organizations, and local communities). The policy process is defined as the process from agenda setting, policy formulation, policy implementation, to policy evaluation and assurance. There will be a strong link between theory, application of this theory and practice. During the module many practical examples from the field of public health policy will be addressed and a field visit will be organized. Students are taught different theoretical approaches to agenda setting and policy which will directly be linked to specific tools to improve and manage a specific policy process. Additionally, the module covers knowledge on the different contextual aspects of the policy process, such as national and international legislation, structure and organization of Public Health, normative beliefs, and the influence of state, market and civil society on public health.

Students will apply the knowledge they acquire during the lectures, E-lectures, and discussion of the

PBL cases immediately in a group paper they will write during this module. This group paper will consist of three chapters, each linked to a training (parts 1 to 4 of the Training Practicing policy skills for local public health contexts). Training 5 and specific cases and 'ping pong sessions' focus on the more practical skills such as cooperation, negotiation, writing, and MT&S, and are also described under module PGZ2225, which is linked to this module). The chapters of the group paper will cover the following topics, respectively: Mapping the public health systems and public health stakeholders in Europe; Policy analysis according to the rational and the political approach; Transferability of interventions: dare to compare.

Course objectives

The formal objectives of this module are listed below:

With respect to knowledge and insight, students acquire knowledge about:

- the macro system: the organization of Public Health (in the Netherlands and internationally), Public Health policy actors, administration/public management, different types of welfare states in relation to Public Health, Health in all Policies;
- general definitions of policy and policy processes;
- the dynamics of policy as explained by different theoretical approaches;
- project management;
- policy tools;
- policy evaluation, including responsive evaluation and economic evaluation
- principles and effective methods of negotiation;- leadership in Public Health (effective leadership and styles of leadership).

With respect to application of knowledge and insight, students are able to:

- assess the macro and policy context of a certain Public Health problem to improve the effectiveness of Public Health policies;
- apply the different theoretical policy approaches to a specific policy problem in order to understand this problem and improve the effectiveness of policies;
- apply the knowledge about policy evaluation in a research proposal for the evaluation of a certain Public Health policy;
- recognize styles of leadership and leadership principles, as well as to reflect on their own leadership competences.

With respect to forming opinions, students can:

- judge the effectiveness of Public Health policies (and make international comparisons of policies);
- compare different theoretical approaches in how they explain bottlenecks in the policy process;
- critically read scientific papers and Public Health policy reports.
- With regard to communication skills, students are trained to:
- Collect stakeholder perspectives- Negotiate and positively affect policy making
- Discuss different perspectives to come to shared decisions regarding policy
- Write papers and present the results of applying knowledge to policy theories and using policy tools

With regard to learning skills, students are trained to:

Bachelor Health Sciences

- Plan and evaluate their own work and learning processes
- Take care of their own quality control and professionalization

Recommended reading

[This is the link to Keylinks, our online reference list.](#)

PGZ2025

Period 5

8 Apr 2024

7 Jun 2024

[Print course description](#)

ECTS credits:

10.0

Instruction language:

English

Coordinator:

- [I. Houkes](#)

Teaching methods:

Assignment(s), Work in subgroups, Lecture(s), Paper(s), PBL, Presentation(s), Training(s), Working visit(s), Skills

Assessment methods:

Attendance, Participation, Presentation, Written exam, Final paper

Keywords:

Public Health Local and occupational setting Rational approach Political approach Institutional approach Policy analysis Stakeholder analysis

Fac. Health, Medicine and Life Sciences

Practical Skills Public Health Policy: General Principles Applied to Local Settings

Full course description

Module PGZ2225 (1 ECTS) contains the practical Skills relevant for public health policy making and is linked with module PGZ2025 Public Health Policy. General principles applied to local settings. This module contains two practical skills trainings (Practicing policy making skills: part 4 and 5; parts 1 to 3 are part of the module itself, see module description of module PGZ2025).

Overall training coordinator is Dr. G. Klabbers, department of Health Ethics and Society, tel. 043-3881128, email g.klabbers@maastrichtuniversity.nl.

As a health promoter it is of great importance to develop specific skills that enable you to collaborate in teams. During all courses in the Bachelor's Programme of Prevention and Health the topic of 'collaboration' will be highlighted. This will be done using different working formats, like training sessions, games and reflection assignments. In this course, training 4 is about negotiation and collaboration skills in policy development. In this training, incorporated in case 11, students will practice negotiation skills (getting the best out for yourself). This training consists of a plenary introductory session and a practical session during which students will have the opportunity to

practice their skills and receive feedback from their peers and a professional trainer. Requirements for this training are active attendance and good preparation. The training assignment is explained in the Syllabus of PGZ2025, case 11.

Part 5 provides students with the opportunity to refine their individual (English) writing and MT&S skills. Students will write their own design paper for a public health policy evaluation. Students will be allowed to select a Public Health policy they consider relevant and interesting, and will be challenged to write a proposal for evaluating this policy (based on the knowledge they have acquired during module PGZ2025). Students will receive feedback on both the content of their proposal (by P&H staff members) and the use of English language (by staff member of the language Centre, most often native speakers). The (individual) paper of this training is part of the writing line.

This training consists of a plenary introductory session and individual writing, after which students will receive feedback. Requirements for this training are attendance at the introductory session and a pass (mark) for the paper.

Course objectives

The formal objectives of this module are listed below:

With regard to communication, students can:

- collect stakeholder perspectives;
- negotiate and positively affect Public Health policy making;
- write papers and present the results of applying knowledge to policy theories and using policy tools.

With respect to learning skills, students have skills to:

- plan and evaluate their own work and learning processes;
- take care of their own quality control and professionalization;
- cooperate with stakeholders from other disciplines in the development, implementation and evaluation of Public Health policy;
- develop their (English) academic writing skills.

Recommended reading

[This is the link to Keylinks, our online reference list.](#)

PGZ2225

Period 5

8 Apr 2024

7 Jun 2024

[Print course description](#)

ECTS credits:

1.0

Instruction language:

English

Coordinator:

- [I. Houkes](#)

Bachelor Health Sciences

Teaching methods:

Assignment(s), Skills, Training(s), Work in subgroups, Research

Assessment methods:

Attendance, Final paper, Participation

Keywords:

skills, negotiation, cooperation, policy evaluation, English writing skills.

Fac. Health, Medicine and Life Sciences

Public Health in International Context

Full course description

A look at questions of public health and health care from an international perspective reveals two persistent trends. The first is globalization. As the world continues to globalize, health threats and health opportunities themselves are becoming more global, and this is readily apparent in recent developments like the Covid-19 pandemic and climate change, but also in the context of much older health conditions, such as tuberculosis. The second trend is that of increased diversity and variation. Public health and health care systems are often challenged by the multiplicity of meanings when we talk about health, and, accordingly, also a multiplicity of approaches to, and perspectives on, how health can best be pursued. Analogously, health inequities across various domains are present and these layer with factors that are sometimes considered beyond the boundaries of (public) health (e.g. poverty, gender inequality, racism) but nonetheless need to be tackled if we are to ensure health for all.

The module is divided into five major thematic areas: 1) Global Health Epidemiology and Data Sources; 2) Transnational Health Governance; 3) HIV in Global Perspective; 4) Tobacco; 5) Climate Change. Some cross-cutting dimensions and additional themes in the module are: 1) ethics and ethical dilemmas; 2) interdependence of human populations; 3) health inequalities; 4) environmental issues.

This module also includes a training in which students engage with a public health problem at the international level, and a 2 day seminar with an invited international guest.

Course objectives

Knowledge and insight :

- to comprehend the primary components of what has been called “globalization” and how these processes relate to and impact health;
- to gain an understanding of the most common causes of mortality and morbidity worldwide and how these are addressed by care systems and public policies;
- to gain insight into socioeconomic inequities at the international level (i.e. among and within nations) and to learn about the relevance of these for both health status and strategy regarding the protection and promotion of health.

Application of knowledge and insight:

- to be better able to contribute to health care and public health planning at the international level, both in developing nations and within the context of transnational health governance structures such as international health organizations (e.g. WHO), health treaties (e.g.

Bachelor Health Sciences

Framework Convention on Tobacco Control), and public-private partnerships (e.g. GAVI, STOP-TB);

- to be better able to contribute to national and local policies based on a knowledge of the international context of health threats and resources for health.

Formation of a judgement:

- to be able to critically evaluate the scientific and applied value of health data and policy initiatives that relate to the comparison of health or health systems across international borders;
- to be able to critically evaluate the relevance of health data and policy initiatives that relate to the comparison of health or health systems across international borders for the Netherlands and European contexts;
- to be able to identify and discriminate among opportunities for the improvement of health both in developing nations and nations in transition, and through international health organizations, treaties and partnerships.

Communication and learning skills:

- to improve in the ability to present findings to groups on themes of healthcare and public health relevance;
- to gain enhanced understanding of data sources about health topics globally and be able to utilize these efficiently and effectively.

Recommended reading

[This is the link to Keylinks, our online reference list.](#)

PGZ2026

Period 6

10 Jun 2024

5 Jul 2024

[Print course description](#)

ECTS credits:

5.0

Instruction language:

English

Coordinator:

- [S. Stutterheim](#)

Teaching methods:

Work in subgroups, Lecture(s), PBL, Paper(s), Training(s)

Assessment methods:

Attendance, Final paper, Written exam

Keywords:

Public health, health inequalities, Migration, ethics, interdependence, health epidemiology, international health institutions, HIV, tobacco control, climate change, globalization

Fac. Health, Medicine and Life Sciences

Practical Skills Public Health in International Context

Full course description

Training 2.2: Role of culture in international healthcare and public health practice

In this training, students will work in small groups and develop an assessment of cultural factors within one specific population worldwide that must be taken into account if any specific type of health problem is to be addressed within that population. In addition to researching and documenting the cultural factors that must be taken into account, groups will develop a method for global communication among colleagues using any available (free) social media platform in a new and innovative way. This platform should be capable of allowing 5-10 public health professionals to develop a rapid assessment of the cultural barriers and assets to addressing a health problem within a specific population. Students will give a short presentation about their findings and will write an executive summary with a high-level description of the barriers and assets and the method. Detailed information about this training can be found in the Training 2.2 Manual.

Training 2.3: Skills in international and online collaboration

The development of skills to collaborate in teams is emphasized in every module in the Prevention and Health Bachelor programme. In a 1-hour training session in the first week of this course, you will receive practical information about intercultural and online collaboration. We will focus on what culture and cultural diversity are, and how culture can affect collaboration in teams. In addition, we will focus on strategies to ensure successful collaboration, both with international and online teams. Through theoretical information, practical tips, and interactive exercises, you will learn more about this topic. There are no deliverables associated with this training for students, although attendance is required.

Training 2.4: Migration as a public health concern

In this module, we will dive into migration as a public health concern. In training 2.4, you will receive a lecture on refugees and health and visit an asylum seekers centre in Limburg. This field excursion will provide an insight into inequalities in health related to migration and it can be food for thought on ethical dilemmas in health (care) and migration. Go with an open and critical mind.

PGZ2226

Period 6

10 Jun 2024

5 Jul 2024

[Print course description](#)

ECTS credits:

1.0

Instruction language:

English

Coordinator:

- [S. Stutterheim](#)

Teaching methods:

Assignment(s), Work in subgroups, Lecture(s), Working visit(s)

Assessment methods:

Attendance, Final paper, Presentation

Bachelor Health Sciences

Keywords:

Public health, Migration, intercultural collaboration, cultural competence, globalization

Fac. Health, Medicine and Life Sciences

Implementation of Public Health Interventions

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

PGZ3025

Period 5

8 Apr 2024

8 May 2024

[Print course description](#)

ECTS credits:

6.0

Instruction language:

Dutch

Coordinator:

- [D.F.L. de Ruijter](#)

Digital Technology and Care

Fac. Health, Medicine and Life Sciences

Kansen in de Zorg: de Rol van Digitale Technologie

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website.

DTZ2021

Period 1

4 Sep 2023

27 Oct 2023

[Print course description](#)

ECTS credits:

8.0

Instruction language:

Dutch

Coordinator:

- [S. Aarts](#)

Vaardigheden Kansen in de zorg

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website.

DTZ2221

Period 1

4 Sep 2023

27 Oct 2023

[Print course description](#)

ECTS credits:

2.0

Instruction language:

Dutch

Coordinator:

- [S. Arts](#)

Fac. Health, Medicine and Life Sciences

Design Thinking en Digitale Zorgtechnologie

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website.

DTZ2022

Period 2

30 Oct 2023

22 Dec 2023

[Print course description](#)

ECTS credits:

11.0

Instruction language:

Dutch

Coordinator:

- [M.D. Spreeuwenberg](#)

Fac. Health, Medicine and Life Sciences

Governance en Digitale Zorgtechnologie

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website.

DTZ2023

Period 3

8 Jan 2024

2 Feb 2024

[Print course description](#)

ECTS credits:

6.0

Instruction language:

Dutch

Coordinator:

- [D. Horstkötter](#)

Fac. Health, Medicine and Life Sciences

Implementing Digital Technology

Full course description

Digital technology shows immense promises to facilitate affordable and patient-centred health care systems that matches current developments and demands in health (care), prevention and society across the globe. However, in order for end users (those that the innovation is meant for, e.g. patients, health professionals) and intermediates (those that play an active role in disseminating the innovation to the end user, e.g. health professionals, managers) to actually use these digital innovations in their daily practice, substantial efforts need to be made. Simply offering the technology to potential users will not be sufficient.

In this module, students will familiarize themselves with the implementation processes of digital innovations; from innovation introduction via adoption and implementation to reaffirmation. Furthermore, they will explore the issues that influence (individual) uptake of digital technology by stakeholder groups in the context of health care and prevention, both from a theoretical and practical perspective.

Course objectives

After completing the module, the student has knowledge and insight into:

- The iterative relationship between digital technology innovation development and its implementation;
- The relevance of (cost-)effect evaluation of technological innovations as a prerequisite for implementation;

Bachelor Health Sciences

- The theoretical and practical processes of implementation from the perspective of an organization and its stakeholders;
- The different levels of stakeholders that should be involved when implementing digital technology in health care;
- Determinants of digital technology implementation within a health care system context and how these determinants might hinder or facilitate innovation uptake;
- Methods to monitor and evaluate digital technology implementation processes;
- Theories describing (digital) technology acceptance and implementation;
- The value of qualitative research in the exploration of digital technology innovation implementation.

After completing the module, the student is able to:

- Critically assess study designs related to (cost-)effect evaluation;
- Analyse and report on qualitative data exploring digital technology innovation implementation;
- Develop an innovation implementation strategy for a specific example of digital health technology innovation, taking into account the needs of relevant stakeholders and various impact indicators concerning reach, effect, adoption, implementation and maintenance (including how to monitor and evaluate these processes).
- Judge the quality of scientific publications and reviews regarding efficacy, cost-effectiveness and cost-utility designs suitable for digital health technology, based on a critical review;
- Judge the quality of organisational reports and policy documents relevant to the implementation of digital health innovations within a health-related context, based on a critical review;
- Communicate their innovation implementation strategy in oral and written form;
- Apply more group-based qualitative research methods to explore needs and beliefs among stakeholders relevant for digital innovation implementation;
- Describe the application of qualitative research methodology and its results and implications within the context of digital health technology implementation in written form.

Recommended reading

Birken SA, Bungler AC, Powell BJ et al (2017). Organizational theory for dissemination and implementation research. *Implementation Science*, 12, 62. DOI: 10.1186/s13012-017-0592-x

Brownson RC, Colditz GA, Knisley Proctor E (2018). Dissemination and implementation research in health: translating science to practice. *Fleuren MAH; Paulussen TGWM, van Dommelen P; van Buuren S* (2014). Towards a measurement instrument for determinants of innovations. *International Journal for Quality in Health Care*, 26 (5); 501-510. DOI: 10.1093/intqhc/mzu060.

Venkatesh V, Thong JYL, Xu X (2016). Unified Theory of Acceptance and Use of Technology: A Synthesis and the Road Ahead. *Journal of the Association for Information Systems*, 17(5); 328-376. DOI: 10.17705/1jais.00428.

Nilsen P (2015). Making sense of implementation theories, models and frameworks. *Implementation Science*, 10, 53. DOI: 10.1186/s13012-015-0242-0.

DTZ2024

Period 4

19 Feb 2024

5 Apr 2024

[Print course description](#)

ECTS credits:

10.0

Instruction language:

Bachelor Health Sciences

English

Coordinator:

- [D.N. Zijlstra](#)

Teaching methods:

Lecture(s), Work in subgroups, Paper(s), PBL, Presentation(s), Training(s), Working visit(s), Assignment(s), Skills

Assessment methods:

Final paper, Written exam, Assignment, Participation, Attendance, Presentation, Take home exam

Keywords:

Digital Health, Innovation Implementation, qualitative research, negotiation

Fac. Health, Medicine and Life Sciences

Datascience in Healthcare

Full course description

The ability to manipulate and understand health-data is increasingly critical to discoveries and innovations in healthcare. Data science is an emerging field that focuses on the processes and systems that enable us to extract knowledge or insight from data in various forms and to translate it into action. With techniques such as machine learning and artificial intelligence being used for prevention of diseases, defining patient profiles and treatment interventions, Data Science plays an increasingly important role in healthscience. The Data Science in this DTZ module covers novel tools, methods and best practices of a data science project. The module is designed around the data science life-cycle and the techniques and challenges into handling data analysis and management in healthcare. Students will gain knowledge on how to formulate a data research question and identify the right dataset and methods needed to answer it. Students will become familiar with basic data analysis algorithms, and will be able to visualize and interpret the results with regard to the data question/hypothesis. The module teaches basic programming skills and how to apply them to perform the data science lifecycle: namely select, clean, analyze, visualize and interpret healthcare data. Each week, practical sessions will enable students to gain hands-on experience with data in healthcare topics.

Course objectives

Knowledge and insight

- differentiating the steps of the data science life cycle;
- formulating data research questions and identifying the right dataset and methods needed to answer these;
- knowledge of how basic data analysis and machine learning algorithms work;
- knowledge of the ways in which algorithms are validated and conclusions are drawn with regard to questions/hypotheses.

Application of knowledge and understanding

- interpret the validity of the findings;
- apply visualization techniques to gain insight into the data and the models;
- identify hypotheses in a dataset;
- use a programming language to define models which test questions and

Bachelor Health Sciences

- apply the right methods within each step of the data science life cycle

Forming opinions

- critically evaluate data science applications for use in the healthcare domain;
- perform critical thinking by discussing given literature and case studies;
- learn to use and extend their knowledge with respect to realistic data science problems

Specific attention will be paid to the communication skills needed to form a bridge-building professionals. By hosting specific meetings to present their knowledge, students will improve their communication skills as well as their professional attitude. The module is designed to enable interaction, feedback, and teamwork.

Recommended reading

Fundamentals of Clinical Data Science, Editors: P.Kubben, M.Dumontier, A.Dekker, (Downloadable for free here <http://www.clinicaldatasciencebook.com/>) □ Book: Jake Vanderplas Python Data Science Handbook | Python Data Science Handbook (Downloadable for free here jakevdp.github.io/PythonDataScienceHandbook/) □ Book: Data Science from Scratch - Joel Grus, second edition, Publisher(s): O'Reilly Media, Inc. SBN: 9781492041122 (we use very few chapters of this book) □ Additional state of the art readings are included and specified in the student portal □ The lecture slides and recordings will be shared via the student portal

DTZ2025

Period 5

8 Apr 2024

7 Jun 2024

[Print course description](#)

ECTS credits:

11.0

Instruction language:

English

Coordinator:

- [V. Urovi](#)

Teaching methods:

Assignment(s), Lecture(s), Work in subgroups, PBL, Presentations, Skills

Assessment methods:

Assignment, Attendance, Participation, Presentation, Written exam, Computer test, Final paper

Keywords:

data science, data analysis, Python, data mining, healthcare

Fac. Health, Medicine and Life Sciences

The Business of Digital Health

Full course description

A strong business case is crucial for the implementation and maintenance of digital innovations in health (care). In this course, you are introduced to several important questions that need to be asked and answered from the beginning of a development process,

focusing on [1] the product (e.g., What are the specifications of my product?), [2] customers and competitors (e.g., Who will be my customers? What are their values? Who will be my competitors?), and [3] costs and revenues (e.g., What is the budget impact?). The course centers on understanding and generating information that is required to answer these questions and being able to communicate about this (e.g., to relevant stakeholders).

Course objectives

Knowledge and insight

Students acquire knowledge and insight about:

- what perspectives - inside and outside health care -are relevant to the business of digital health (e.g., marketing and communication, finance);
- what a product entails in the context of digital health;
- what the relevant stakeholders and competitors in the business of digital health are, both at national and international level;
- relevant tools to develop a business case (e.g., SWOT analysis, business model canvas);
- the basic elements of cost structures and revenue streams in health care (e.g., budget impact analysis, early health technology assessment).

Application of knowledge and understanding

After this module the students are able to:

- understand information required for a business case and are able to apply it in a business case;
- generate information required for a business case at a basic level;
- apply relevant tools that are useful to develop a business case (e.g., SWOT analysis, business model canvas, budget impact analysis) at a basic level.

Forming opinions

After this module the students can:

- judge the relevance of various sources of information for developing a business case;
- take a stance at the interface between expertise and business;
- value challenges and opportunities in the business of digital health.

Communication

After this module the students can:

- communicate with various stakeholders in the business of digital health;
- convince various stakeholders about the relevance of digital innovations in health;
- communicate formats (e.g., pitch, management summary) that differ from traditional academic formats (e.g., conference presentation, scientific article) and understand the differences between both.

Learning skills

After this module the student have skills to:

Bachelor Health Sciences

- shift perspectives to the point-of-view of different stakeholders in the business of digital health;
- analyse sources of information (e.g., McKinsey or KPMG reports) that differ from traditional academic formats (e.g., scientific articles).

Recommended reading

[This is the link to Keylinks, our online reference list.](#)

DTZ2026

Period 6

10 Jun 2024

5 Jul 2024

[Print course description](#)

ECTS credits:

6.0

Instruction language:

English

Coordinator:

- [D.W.M. Gevers](#)

Teaching methods:

Assignment(s), Work in subgroups, Lecture(s), Paper(s), Presentations, Skills, PBL

Assessment methods:

Assignment, Attendance, Written exam

Keywords:

business; digital health

Fac. Health, Medicine and Life Sciences

Samenwerking in de Zorg en Digitale Technologie

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website.

DTZ3025

Period 5

8 Apr 2024

8 May 2024

[Print course description](#)

ECTS credits:

6.0

Instruction language:

Dutch

Coordinator:

- [M.E.A.L. Kroese](#)

Academic Skills

Fac. Health, Medicine and Life Sciences

Advanced Statistics and Research Methods

Full course description

The module 'Advanced statistics and research methods' extends the statistical data-analytic tools, as treated in GZW1026 ("Introduction to statistical methods for data-analysis"), and broadens and elaborates on methodological issues in research in health sciences, as treated in GZW1023 ("Introduction to scientific research methods"). Central are four methodological-statistical themes, which will be treated from a multidisciplinary perspective, integrating both statistical and methodological issues:

(I) Quantitative research into and evaluation of causal relations between determinants and health related outcomes, with two subthemes:(A) observational research, and (B) experimental research;

(II) Research into the quality of measurements and measurement devices;

(III) Planning quantitative research;

(IV) Critical reading of and assessing the quality of scientific articles, based on the methods and statistics section.

The latter theme fits in the curriculum critical reading as part of the trajectory academic development. Each theme will be illustrated by real-life examples, where possible problems and dilemmas from the practice of health science research are discussed. Also the relation between methodological and statistical aspects of scientific research are addressed. These aspects are elaborated through different educational formats (lectures, seminars, skills trainings, assignments). Two themes (I and II) will close with a seminar in which a real-life problem of the theme is addressed and in which methodological and statistical aspects are discussed in an integrated way.

Course objectives

After completing the course the student will have knowledge of and insight into:

- Important experimental and observational research designs;
- Selection bias, information bias and confounding;
- Effect-modification and interaction;
- Multiple linear, logistic and linear mixed regression as instruments for research into causality;
- Relation between linear regression and AN(C)OVA;
- Different forms of and statistical techniques for examining reliability, validity and agreement;
- Power of a test and techniques to determine the minimally required sample size;
- Different forms of, selection strategies and methods to interpret results of systematic literature research;
- Relation between a health sciences research question, number and measurement levels of variables, choice of a research design and choice of a statistical technique.

After completing the course the student can:

- Calculate and interpret measures of association for different research designs;
- Perform linear, logistic and a (simple) linear mixed-effects regression in SPSS;
- Perform a stratified and multivariate analysis to examine confounding and effect-modification;
- Apply techniques to examine reliability, validity and agreement, within SPSS;
- Assess the quality of diagnostic and screening tests;
- Perform simple sample size calculations with Gpower;
- Make a motivated choice from research designs and statistical analysis techniques;
- Adequately interpret (published) research results from a methodological and statistical perspective;
- Evaluate the causality of a relation between determinants and health related outcomes.
- Accurately report the results of statistical analyses (written and verbally);
- Can pursue education in statistics and methodology.

Recommended reading

Basic literature: Berger, M.P.F., Imbos, Tj. & Janssen, M.P.E. (2008). Methodologie en Statistiek 2. (Vol. 2). Maastricht: Universitaire Pers Maastricht. Bouter, L.M., van Dongen, M.C.J.M., Zielhuis, G.A., Zeegers M. (2015). Leerboek epidemiologie: Opzet en interpretatie. Houten: Bohn Stafleu Van Loghum. Field, A. (2018). Discovering statistics using IBM SPSS statistics, 5th edition, London: Sage. Fletcher, Fletcher & Fletcher (2014). Clinical Epidemiology: The Essentials. Fifth Edition, Baltimore: Wolters Kluwer / Lippincott Williams & Wilkins. Additional literature as referred to in the seminars

GZW3024

Period 4

5 Feb 2024

5 Apr 2024

[Print course description](#)

ECTS credits:

10.0

Instruction language:

Dutch

Coordinators:

- [M.J.J.M. Candel](#)
- [L.G.P.M. van Amelsvoort](#)

Teaching methods:

Assignment(s), Lecture(s), Work in subgroups, Presentations, Skills

Assessment methods:

Assignment, Written exam, Attendance

Keywords:

regression analysis, quality of measurements, power, causality, bias, systematic review

Fac. Health, Medicine and Life Sciences

De Arena van Gezondheidswetenschappers

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

GZW3224

Period 4

5 Feb 2024

5 Apr 2024

[Print course description](#)

ECTS credits:

2.0

Instruction language:

Dutch

Coordinator:

- [J.A. Beuken](#)

Fac. Health, Medicine and Life Sciences

Thesis Assignment Philosophy-In-Action

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

GZW3226

Period 5

8 Apr 2024

7 Jun 2024

[Print course description](#)

ECTS credits:

1.0

Instruction language:

Dutch

Coordinator:

- [M.E. Knibbe](#)

Thesis

Fac. Health, Medicine and Life Sciences

Thesis

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

GGZ3026

Year

4 Sep 2023

31 Aug 2024

[Print course description](#)

ECTS credits:

11.0

Instruction language:

Dutch

Coordinator:

- [M. Drukker](#)

Fac. Health, Medicine and Life Sciences

Thesis

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website.

PGZ3026

Year

4 Sep 2023

31 Aug 2024

[Print course description](#)

ECTS credits:

11.0

Instruction language:

Dutch

Coordinator:

- [L.A.D.M. van Osch](#)

Fac. Health, Medicine and Life Sciences

Thesis

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

Bachelor Health Sciences

BMZ3026

Year

4 Sep 2023

31 Aug 2024

[Print course description](#)

ECTS credits:

11.0

Instruction language:

Dutch

Coordinator:

- [P.M.G. Erkens](#)

Fac. Health, Medicine and Life Sciences

Thesis

Full course description

This study programma is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website

BGZ3026

Year

4 Sep 2023

31 Aug 2024

[Print course description](#)

ECTS credits:

11.0

Instruction language:

Dutch

Coordinator:

- [H. Pallubinsky](#)

Fac. Health, Medicine and Life Sciences

Thesis

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website.

DTZ3026

Year

4 Sep 2023

31 Aug 2024

[Print course description](#)

Bachelor Health Sciences

ECTS credits:

11.0

Instruction language:

Dutch

Coordinator:

- [M.E.A.L. Kroese](#)

Minor

Minor

Fac. Health, Medicine and Life Sciences

FIA Jaar 3 Minor (Verdiepingsvariant)

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website.

GZW3260

Period 1

2 Oct 2023

3 Nov 2023

[Print course description](#)

ECTS credits:

3.0

Instruction language:

Dutch

Fac. Health, Medicine and Life Sciences

Law and Life Science Research

Full course description

Life Science research and work operates within a chain from blueskies, theoretical science to very practical product development - from science to technology. Each of these stages is a highly social activity, it relates to the communities in which it is set. Therefore, there is an on-going relationship between science and society. This is governed by a number of structures, particularly law and ethics. These structures are changing in response to scientific developments and societal sensitivity and drive. Taking a number of recent examples, it can be seen that life science research and technology development poses difficult questions for the societies in which they are set. The European Court of Justice's recent decision in the Brüstle case on the patenting of technologies using research on human embryonic stem cells has far reaching consequences for life science research. The use of medical and genetic data for research where it was gathered initially for patient treatment poses interesting questions about the extent of autonomy and solidarity in society; when is consent required to undertake research, and how far is an appeal to the public interest acceptable where the proposed research is not physically invasive to the patient. The response to genetic modification of

food or other organisms shows interesting differences in public opinion. Likewise, the three Eurobarometers on biotechnology show that there is a wide range of sensitivities expressed within the European population. How should regulation respond to that range of opinion? These questions are not only for lawyers and ethicists, but they are for life science researchers.

Course objectives

With respect to knowledge and insight, students acquire knowledge about: Legal rules in international, European and domestic law that operate in the area of life science research; The nature of law, and broad legal principles behind the law's contribution to governance; Particularly about the way that different types of procedures are used to regulate the life sciences (e.g. research ethics committees, patent law, criminal law, licensing, etc.); Specific laws relating to the use of human tissue and data, human participation in research, and the cross-over between research and therapy; and animal research regulation; Ethics, the precautionary principle, and other risk benefit analysis approaches adopted in normative governance of the life sciences. With respect to application of knowledge and insight, students are trained to: Read and understand legal documents (particularly treaties and European legislation, and guidance documents and codes of practice); Understand how legal and ethical arguments are constructed at different points in the governance chain; Apply these insights to 'live' emerging science and bioethics issues. With respect to formation of a judgment, students are trained to: Compare the construction of 'truth' and 'evidence' in social science, legal, and life science disciplines; Consider how evidence is used in relation to principles in law and ethics; Consider how to adjudicate between different competing and contested arguments within this area. With respect to learning and communication skills, students are trained to: Construct effective, logical and evidenced arguments; Consider how far discussion can be useful in the creation of normative arguments and responses; Develop effective skills in presenting arguments.

Recommended reading

[This is the link to Keylinks, our online reference list.](#)

GZW3013

Period 1

4 Sep 2023

27 Oct 2023

[Print course description](#)

ECTS credits:

12.0

Instruction language:

English

Coordinator:

- [A. Parziale](#)

Teaching methods:

Lecture(s), PBL

Assessment methods:

Assignment, Oral exam

Keywords:

Governance; Life Sciences; Ethics Committees; Animal Research; Data Protection; Law

Fac. Health, Medicine and Life Sciences

The Law of Public Health and Care

Full course description

Healthcare has never been more exciting. We understand more about individual and public health than ever before, at much deeper levels, and we are able to translate that knowledge into treatments and products that make an enormous impact on individual citizens' lives. Expectations are, therefore very high, as are the increasing costs of this revolution. In the current economic environment, healthcare is a major political question, and the legal safeguards that are in place both to ensure that public health is able to operate effectively and that protect individual patients' rights are highly important and are contested. Examples of public health threats and the need for coherent safeguards of individual's rights and freedoms regularly hit the news. Food standards are called into question, for example, with unregulated horsemeat being passed off as beef. Influenza epidemics are regularly reported as likely. Immunization for a wide range of diseases is possible. Epidemiological research using data gathered through eHealth initiatives challenge established ideas about privacy. Personalised medicine begins to question the meaning of 'public health' when it becomes clearer that individual responses are more effective than collective approaches. Each of these calls the traditional ideas about public health, the rights and expectations of individuals that have to be safeguarded, and what safeguards are acceptable in modern society.

Course objectives

With respect to knowledge and insight, students acquire knowledge about: Public Health law in international, European and domestic settings; The nature of law, and broad legal principles behind the law's contribution to public health; Particularly about the way that different types of procedures are used to regulate the public health (e.g. medical committees and officials, criminal law, privacy, public interest arguments, etc.); Other normative considerations relating to framing public health responses; How public health responses operate. With respect to application of knowledge and insight, students are trained to: Read and understand legal documents (particularly treaties and European legislation, and guidance documents and codes of practice); Understand how legal and ethical arguments are constructed at different points in relation to public health, particularly how human rights decisions are made at the European Court of Human Rights; Apply these insights to 'live' public health issues. With respect to formation of a judgment, students are trained to: Consider the difference between life science, medical, political, legal and ethical judgments; Consider how each type of judgment is constructed; Consider how different judgments are given authority and enforced in society. With respect to learning and communication skills, students are trained to: Construct effective, logical and evidenced arguments to influence political decision-makers; Consider how far discussion can be useful in the creation of normative arguments and responses; Develop effective skills in presenting arguments.

Recommended reading

[This is the link to Keylinks, our online reference list.](#)

GZW3014

Period 2

30 Oct 2023

22 Dec 2023

[Print course description](#)

Bachelor Health Sciences

ECTS credits:

12.0

Instruction language:

English

Coordinator:

- [A. Parziale](#)

Teaching methods:

Lecture(s), PBL

Keywords:

Public Health; Law; Ethics

Fac. Health, Medicine and Life Sciences

Health Justice

Full course description

Health research, care and promotion, and health service planning and delivery, present interesting questions of law and ethics. Equally, law and more often ethics pose interesting questions for health and life science conduct. These questions range from issues surrounding the substantive issues – for example, human embryonic stem cell work, new surgical procedures, the list of conditions routinely treated through the standard health insurance package – and more procedural issues, particularly about the changing relationship between health providers and healthcare consumers (health professionals and patients, as we used to say). These developments are regulated and governed within legal and ethical structures that require on-going negotiation within the cultural and political norms of our societies. Whilst healthcare delivery is traditionally seen as a matter for the domestic government, it is increasingly a matter of European Union (EU) and international concern – ‘global health’ is now a widely understood and accepted concept, and ‘health justice’ is a response to perceived health inequities.

Health Justice is a short course that completes the Health Law Minor programme. It enables students to consider issues in healthcare provision from a variety of ‘metamedica’ perspectives and to develop their ideas, building on the twin perspectives of the law relating to the life sciences and to public health and care. The aim is to give students a space within which to draw conclusions about the law and ethics of health, medicine and the life sciences, focusing particularly on the definition and normative goal of ‘health justice’. ‘Justice’ is not merely a descriptive term, it contains a moral imperative to action. This course is designed to encourage students across the GZW programmes to bring their studies together and look to their future contribution in health service.

Course objectives

With respect to knowledge and insight, students acquire knowledge about:

- The philosophical underpinnings of health justice;
- The human rights agenda in health;
- Understanding global health; and,
- Law and ethics on a particular subject within health research, care, promotion and administration of the student’s choice.

With respect to application of knowledge and insight, students are trained to:

Bachelor Health Sciences

- Develop an understanding of practical philosophy and applied ethics;
- Build on their skills in using law and legal arguments in addressing health issues; and,
- Consider the relationship between politics, law and ethics in healthcare.

With respect to formation of a judgment, students are trained to:

- Apply a broad range of ethical and legal concepts in a policy area; and,
- Develop an understanding of how to adjudicate between different claims in policy making.

With respect to learning and communication skills, students are trained to:

- Build on their legal writing skills;
- Develop arguments in ethics and philosophy; and,
- Focus on poster writing.

Assessment

Poster Presentation

Each pair of students will be required to present their individual work on their poster to two examiners and the whole group on a specific date at the end of the course. The poster will be produced on a PowerPoint slide for projection in a lecture theatre.

Poster

The students work in pairs. Each pair is required to produce a scientific poster on their own research. Each has to identify the work in the poster that they have produced. The presentation will be for a maximum of 20 minutes, and the student is expected to outline the arguments they made in the poster and respond to any questions made by the examiners and the group.

Recommended reading

[This is the link to Keylinks, our online reference list.](#)

GZW3015

Period 3

8 Jan 2024

2 Feb 2024

[Print course description](#)

ECTS credits:

6.0

Instruction language:

English

Coordinator:

- [A. Parziale](#)

Teaching methods:

Assignment(s), Lecture(s), Work in subgroups, PBL, Research

Assessment methods:

Observation, Presentation

Keywords:

Health Justice; Law; Ethics

Fac. Health, Medicine and Life Sciences

Aan het Werk! Interprofessionele Samenwerking in de Beroepspraktijk

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in Dutch. If you would like to read the Dutch programme information, please choose 'NL' at the top of the website.

GZW3016

Period 1

4 Sep 2023

2 Feb 2024

[Print course description](#)

ECTS credits:

30.0

Instruction language:

Dutch

Coordinator:

- [J.M. de Nooijer](#)

Fac. Health, Medicine and Life Sciences

Critical Review of a Biomedical Intervention

Full course description

In this final 4-week course of the minor program, students will write a systematic literature review of a biomedical intervention that is based on the knowledge obtained in the trajectory followed during the first two minor courses. Reviews will be written in small groups of 4 students to focus on one concisely formulated research question (RQ) related to the biomedical intervention route of their interest. Each student will work on their individual sub-RQ within the review as well as contribute to the general parts of the writing product.

In this final 4-week course of the minor program, students will write a systematic literature review of a biomedical intervention that is either pharmacological, nutritional or physical based on the knowledge obtained in the trajectory followed during the first two minor courses. Reviews will be written in small groups of 3 to 4 students from the same minor background to focus on one concisely formulated research question related to the biomedical intervention route of their interest.

Course objectives

Applying academic skills to write a systematic literature review on a self-chosen biomedical intervention

Recommended reading

[This is the link to Keylinks, our online reference list.](#)

BBS3003

Period 3

8 Jan 2024

2 Feb 2024

[Print course description](#)

ECTS credits:

6.0

Instruction language:

English

Coordinators:

- [A.W. Boots](#)
- [E.M.J.M. Schillings](#)

Teaching methods:

Assignment(s), Lecture(s), Paper(s), Research

Assessment methods:

Assignment, Final paper

Keywords:

academic writing systematic review

Fac. Health, Medicine and Life Sciences

Diet, Nutrition and Health

Full course description

General information

It is generally acknowledged that nutrition plays an important role in an optimal development and maintaining health throughout the life course. As such, optimal nutrition not only plays an important role in disease prevention but also in disease management. Current nutritional guidelines mainly focus on obesity, cardiovascular disease and type 2 diabetes. However, increasing experimental and clinical evidence suggests that nutrition can also be considered a modifiable factor to prevent the onset and progression of other chronic diseases, such as Alzheimers, COPD, macular degeneration, non-alcoholic fatty liver disease, Irritable Bowel Syndrome and intestinal bowel diseases. Therefore, the main aim of the minor Nutrition is to study the role of (personalized) nutrition in the prevention and treatment of chronic diseases.

Tutorials, lectures and journal clubs

Within the course, a variety of 5 different areas will be discussed for 1-2 weeks each. These areas include the brain, intestines, liver, lungs and eyes and will cover a variety of different diseases including amongst others Alzheimers, macular degeneration, non-alcoholic fatty liver disease, COPD, lung cancer, celiac disease, Irritable Bowel Syndrome and intestinal bowel disease. The different areas will be covered in multiple lectures and will be further discussed using typical problem-based learning cases. Additionally, for each area a scientific paper will be discussed during a journal club.

Academic project

During the course, students will work in groups on an academic project, which will be guided by an experienced researcher. In this project, students will be asked to develop and follow either a diet low in gluten or a diet high in fiber. Each group will prepare a “making of”-movie about their experiences preparing and following the diet. Before and after the diet, students will measure several parameters which are related to the topics discussed in the PBL cases; i.e. cognition, bowel complaints, blood pressure etc. Once the measurements have been completed, results for each diet group will be combined, and each group of students will write a scientific report and give a presentation during the mini-symposium.

Practical

Next to the academic project, students will also learn how the role of nutrition in chronic disease can be investigated in an experimental setting. Students will perform a cell-culture experiment in the lab. C2C12 myoblasts will be cultured and stimulated with a nutritional component. After three days, students come back to the lab and measure the activity of a specific reporter in the cells to assess the effect of the nutritional component.

Visiting a nutritional company

Translating the concepts of basic nutritional science is necessary for the production of advanced clinical nutrition products. The Nutricia Research Centre in Utrecht is a company that builds bridges between science and food. Students will visit the centre in Utrecht not only to get insight on how nutritional products are being developed, but also to see an example where they could work after finishing biomedical sciences.

Assessment

Students will pass the course in case of 100% attendance, a pass for the academic project and the practical report and a sufficient mark on the final written exam.

Recommended reading

[This is the link to Keylinks, our online reference list.](#)

BBS3013

Period 1

4 Sep 2023

27 Oct 2023

[Print course description](#)

ECTS credits:

12.0

Instruction language:

English

Teaching methods:

Lecture(s), Work in subgroups, Paper(s), PBL, Presentation(s), Research, Skills, Working visit(s)

Assessment methods:

Assignment, Attendance, Presentation, Written exam

Fac. Health, Medicine and Life Sciences

Immune Responses in Health and Disease

Full course description

The immune system is a remarkable natural system that is proving to be of great inspiration to scientists, medical staff and students. It is ubiquitous in present life. This course provides a detailed study of the functioning of the immune system. Students acquire insights into the molecular and cellular interactions and functioning of the immune system in normal conditions. Topics include the development of immune cells, humoral and cell-mediated immunity, and tolerance. During the past decades, evidence has mounted that many (chronic) diseases are characterized by an imbalance of the immune system. Moreover, we are challenged by complex situations where it is demonstrated that the immune system plays a crucial role. Therefore, the role of the immune system in a variety of diseases and complex situations (e.g. cancer, autoimmunity, neurodegenerative diseases, microbial defense, transplantation and vaccination) will be studied in an integrated way during the project week and integration assignment.

This course provides a detailed study of the function of the immune system and previous/basic knowledge of the immune system is assumed/recommended for this course.

Course objectives

ILO3014.1 Explain the structure and function of lymphoid organs and the development of leucocytes:

1. Describe and draw lymphoid organs and relate the structure of lymphoid organs to their function.
2. Explain the development of innate immune cells.
3. Explain the development and maturation of adaptive immune cells.
4. Explain the migration pathways of leucocytes in the body (during homeostasis and disease/infection).

ILO3014.2 Analyze the activation and downregulation of innate and adaptive immune responses:

1. Compare the innate and the adaptive immune system during sterile and non-sterile inflammation.
2. Explain the genetic base and diversity of MHC molecules and their role in disease.
3. Examine the immune regulation mechanisms of the immune system.

ILO 3014.3 Explain the roles of immune cells in the innate and adaptive immune systems in health:

1. Explain in time (4D), order, and function
2. Gender diversity and aging
3. Influence of nutrition/environment

ILO 3014.4 Understand and present the immune processes underlying immune related pathophysiology:

1. Hypersensitivity (incl allergy and autoimmunity)

Bachelor Health Sciences

2. Immunodeficiency
3. Cancer

ILO 3014.5 Understand and present strategies to modulate immune responses to improve human health:

1. Design a plan to translate an invention from research to clinical application.

ILO 3014.6 Explain techniques commonly used to investigate the phenotype and function of cells in immune responses:

1. Students know the basic principles and applications of serological and cellular immune tests and can correctly analyze and interpret the results.
2. Students understand the selection and application of practical immunological approaches to conduct an investigation.

Recommended reading

[This is the link to Keylinks, our online reference list.](#)

BBS3014

Period 1

4 Sep 2023

27 Oct 2023

[Print course description](#)

ECTS credits:

12.0

Instruction language:

English

Teaching methods:

Assignment(s), Lecture(s), Work in subgroups, Paper(s), PBL, Presentations, Skills

Assessment methods:

Assignment, Attendance, Final paper, Participation, Presentation, Written exam

Keywords:

Development of immune system Humoral and cell-mediated immunity Tolerance Immune-related conditions Immunological therapies

Fac. Health, Medicine and Life Sciences

Neurosciences and Control

Recommended reading

[This is the link to Keylinks, our online reference list.](#)

BBS3015

Period 1

4 Sep 2023

27 Oct 2023

[Print course description](#)

ECTS credits:

12.0

Bachelor Health Sciences

Instruction language:

English

Coordinator:

- [M. Mané Damas](#)

Fac. Health, Medicine and Life Sciences

Pharmacological Interventions

Recommended reading

[This is the link to Keylinks, our online reference list.](#)

BBS3016

Period 1

4 Sep 2023

27 Oct 2023

[Print course description](#)

ECTS credits:

12.0

Instruction language:

English

Fac. Health, Medicine and Life Sciences

Physical Activity and Health

Full course description

Physical activity and health are linked inseparably. If you want to improve health, prevent disease, or reduce symptoms by changing behavior, physical activity is often the way to go. Different types of physical activity and physical exercise training each have their own impact on our physical fitness. So, each desired goal requires a specific training program.

In this minor you will apply knowledge about the impact of physical activity to design an intervention to improve the health of a specific target group. The challenge is to discover which physical activity and training leads to the desired effect in your chosen target group, as well as which characteristics you should take into account, like age, baseline physical fitness, nutritional status, personal characteristics, and context.

Throughout the minor, student groups will design an intervention plan based on the knowledge and experience they gain from lectures and tutorials. Experts in the field will illustrate the important aspects in interactive lectures, which also includes time for Q&A about the project. Student groups shortly describe their intervention plans and can ask questions to the expert for the further development of their intervention. In addition to the lectures and tutorials, students will learn how to measure physical activity and cardiorespiratory fitness during practicals about cardiopulmonary exercise testing and activity monitoring.

Course objectives

In this minor you will have a close look into the relationship of physical activity and health, applied to feasible and effective interventions to promote health. To this end, you will learn primarily how physical activity affects your health, and which factors to consider when putting this into practice. Students will:

- Understand the physical activity dimensions: frequency, intensity, time, and type; ranging from inactivity to exercise
- Identify causes of inter-individual variation in human performance
- Design a physical activity/physical exercise training program adequate for the goal chosen in patients with a chronic disease
- Be able to select an adequate assessment method of physical fitness for a given population and research question
- Be able to select an adequate physical activity monitoring method using the strengths and weaknesses of the main types of physical activity monitoring
- Be able to account for dietary status while designing a PA program
- Understand the personal characteristics that should be taken into account when designing a PA program.

Recommended reading

[This is the link to Keylinks, our online reference list.](#)

BBS3023

Period 2

30 Oct 2023

22 Dec 2023

[Print course description](#)

ECTS credits:

12.0

Instruction language:

English

Teaching methods:

Assignment(s), Lecture(s), Work in subgroups, Paper(s), PBL, Presentations, Skills

Assessment methods:

Assignment, Final paper

Keywords:

physical activity, assessment methods, training modalities, health, monitoring, adherence, Behavior
Fac. Health, Medicine and Life Sciences

Infection and Immunity

Full course description

While pathogenic microorganisms cause infections and evoke pro-inflammatory immune responses, billions of commensal microorganisms live in symbiosis with their host. This raises various intriguing questions on the delicate interactions between the immune system and the plethora of microorganisms that we as a host encounter. How can our (mucosal) immune system maintain peace with trillions of commensal microbes, while keeping pathogens at bay? What is the role of the

commensals in providing protection against pathogens and in training our immune system? What are the immunological health consequences of loss of microbial biodiversity? How do pathogens evolve to evade our immune system and cause disease? Which options do we currently have to treat or prevent infectious diseases and what are potential future personalized treatment strategies?

In this course these bi-directional host-microbe interactions during homeostasis and infection will be analysed and compared.

Basic challenges (cases) will be alternated by convince-the-expert meetings during which various host-microbe interactions will be discussed with experts in the fields of immunology, microbiology and infectious diseases. In addition you will be working on an academic group project in which the gained knowledge will be applied to develop a future solution to tackle microbe-mediated diseases. The results of the academic project will be presented during a final symposium at the end of the course.

Within this course there will also be several skills trainings to study. This includes a training on mucosal immunological tissues. Moreover, you will have the opportunity to design and conduct your own intervention study to modify your own oral microbiome.

Course objectives

- To evaluate future solutions to treat and prevent deleterious infections and microbiome-mediated diseases
- To compare current strategies for the therapeutic treatment of infections by targeting the microbe or supporting the immune system
- To analyze the processes by which the immune system in response to an infection leads to pathology, and the consequences of failing to control infection
- To distinguish how the host's immune system discriminates between various microbes, and commensal vs. pathogenic bacteria
- To examine what determines microbial virulence and how commensals can turn into pathogens
- To understand the various microbial ecosystems in the human body and explain their role in maintaining human health and to analyze the link between lost microbial exposure and the rise in non-communicable/communicable diseases.

Recommended reading

[This is the link to Keylinks, our online reference list.](#)

BBS3024

Period 2

30 Oct 2023

22 Dec 2023

[Print course description](#)

ECTS credits:

12.0

Instruction language:

English

Coordinator:

- [J. Penders](#)

Bachelor Health Sciences

Teaching methods:

Assignment(s), Work in subgroups, Lecture(s), PBL, Presentation(s), Research, Skills

Assessment methods:

Presentation, Written exam

Keywords:

Mucosal Immunology, Microbiome, Host-Microbe interactions, Innate immune system, Adaptive immune system, Microbiology, Bacteria, Antimicrobial therapy, Fecal Microbiota Transplantation, Vaccination, Virulence

Fac. Health, Medicine and Life Sciences

Omics Technologies and Their Analysis

Full course description

This course takes you on a journey through the varied landscape of -omics technologies and their applications. We discuss genomics screening methods, both focusing on detection of genetic variants and their association to diseases or other phenotypes, as well as transcriptomics detection of gene expression levels and their changes. Then we turn our attention to proteomics screening technologies, to determine protein abundances. Thereafter, metabolomics is discussed, to detect metabolites and determine their abundances. Finally, we touch upon the integration of the various methods and approaches. For the genomics part of the course, we mainly focus on the application of next-generation sequencing (genome, exome, and RNA sequencing). For proteomics, we discuss separation methods (gel electrophoresis, chromatography) and the most used technology for detection, mass spectrometry. Quantitative proteomics, as well as the combination with imaging technologies, are discussed. For metabolomics, next to gas and liquid chromatography and MS techniques, we discuss nucleic magnetic resonance (NMR) as a frequently used method. For all omics applications included in the course, we discuss sample preparation, quality control, the technology and equipment used, the data generated, its analytical processing, analysis and the interpretation of results. Besides specific omics, the course pays some attention to experimental design of omics-driven research. Also, various biomedical applications are explored. Furthermore, a number of wet-lab and computer practicals illustrate how to prepare samples, analyse them in the lab, process the generated data, and use online resources to interpret the findings. Also, in this course critical evaluation of published findings is taken into account. In addition, a group project has the application of the various omics methods to a dedicated biomedical domain as its core focus. A regular week features two one-hour lectures, one PBL tutorial, either a journal club or an experimental design discussion, a (wet-lab or computer) practical, and a meeting of the project group. Assessment consists of (i) a group presentation of the project work; (ii) a final exam with a number of open questions on the omics discussed as well as their application.

Recommended reading

[This is the link to Keylinks, our online reference list.](#)

BBS3025

Period 2

30 Oct 2023

22 Dec 2023

[Print course description](#)

ECTS credits:

12.0

Bachelor Health Sciences

Instruction language:

English

Teaching methods:

Work in subgroups, Lecture(s), PBL, Presentation(s), Skills

Assessment methods:

Attendance, Participation, Presentation, Written exam

Keywords:

genomics transcriptomics proteomics metabolomics next-generation sequencing (NGS)

chromatography (GC, LC) mass spectrometry (MS, MS-MS) nuclear magnetic resonance (NMR)