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'!

Get our infopack!

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:

Bachelor Health Sciences

- 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 copy 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
5 Sep 2022
28 Oct 2022
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 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

GZW1022
Period 2
31 Oct 2022
23 Dec 2022
Print course description
ECTS credits:
10.0
Instruction language:
Dutch
Coordinator:

- P.J. van Noten

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
9 Jan 2023
3 Feb 2023
Print course description
ECTS credits:
6.0
Instruction language:
Dutch
Coordinators:

- M.C.J.M. van Dongen
- M.J.L. Bours

Fac. Health, Medicine and Life Sciences

Health, Eating and Physical Activity

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

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 McArdle 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
6 Feb 2023
7 Apr 2023
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 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

GZW1025
Period 5

Bachelor Health Sciences

10 Apr 2023
9 Jun 2023
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 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

GZW1026
Period 6
12 Jun 2023
7 Jul 2023
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
5 Sep 2022
28 Oct 2022

Bachelor Health Sciences

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 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

GZW1222
Period 2
31 Oct 2022
23 Dec 2022
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 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

GZW1224
Period 4
6 Feb 2023
7 Apr 2023
Print course description
ECTS credits:
2.0
Instruction language:
Dutch

Bachelor Health Sciences

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
10 Apr 2023
9 Jun 2023
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
10 Apr 2023
9 Jun 2023
Print course description
ECTS credits:
1.0
Instruction language:
Dutch
Coordinator:

- S. Groothuis

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
5 Sep 2022
9 Jun 2023
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
5 Sep 2022
28 Oct 2022
Print course description
ECTS credits:
1.0
Instruction language:
Dutch
Coordinator:

- H. Roebertsen

Fac. Health, Medicine and Life Sciences

Academic Writing Skills

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

GZW1241
Period 2
31 Oct 2022
23 Dec 2022
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
9 Jan 2023
7 Apr 2023
Print course description
ECTS credits:
1.0
Instruction language:
Dutch
Coordinator:

- E.G.M. Geelen

Fac. Health, Medicine and Life Sciences

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

Students study selected chapters of primary sources of the philosophers introduced in this week, secondary sources using theories of these philosophers, and examples fitting the subject.

GZW2224
Period 4
6 Feb 2023

Bachelor Health Sciences

10 Feb 2023
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 interensting 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

A list of books that are to be reviewed will be made available at the opening lecture of the previous PhiA week in block 2.4. . Students choose additional literature themselves based on a) referencelist of the choosen book b) known literature from previous PhiA courses, c) known literature from other health science courses, d) independent literature search.

GZW2225
Period 5
10 Apr 2023
14 Apr 2023
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
Keywords:
academic books, book review, Critical Thinking

Bachelor Health Sciences

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
3 Oct 2022
4 Nov 2022
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 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

BGZ2021
Period 1
5 Sep 2022
28 Oct 2022
Print course description
ECTS credits:
9.0
Instruction language:
Dutch
Coordinator:

- T.C.M. Adam

Fac. Health, Medicine and Life Sciences

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
5 Sep 2022
28 Oct 2022
Print course description
ECTS credits:
1.0
Instruction language:
Dutch
Coordinator:

- T.C.M. Adam

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
31 Oct 2022
23 Dec 2022
Print course description
ECTS credits:
10.0
Instruction language:
Dutch
Coordinator:

- A.M. van den Beucken

Assessment methods:
Final paper
Fac. Health, Medicine and Life Sciences

Practical Skills 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

BGZ2222
Period 2
31 Oct 2022
23 Dec 2022
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
9 Jan 2023
3 Feb 2023
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

Bachelor Health Sciences

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
9 Jan 2023
3 Feb 2023
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 transanimation, 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

Chapters will be selected from: • Insel, P., Turner, R.E., and Ross, D. (2010) Nutrition. 4th edition. Sudbury: Jones and Bartlett. • Silverthorn, D.U. (2009) Human physiology, 4th edition. San Francisco: Pearson; of Hall, J.E. (2011) • Guyton and Hall Textbook of Medical Physiology, 12th edition. Philadelphia: Elsevier; of Boron, W.E. & Boulpaep, E.L. (2009) Medical Physiology: A cellular and molecular approach, 2nd edition. Philadelphia: Saunders. • Frayn, K.N. (2010) Metabolic regulation: a human perspective, 3rd ed, Oxford: Wiley-Blackwell. • McArdle W.D., Katch F.I. and Katch V.L. (2007) Exercise Physiology: Energy, Nutrition, and Human Performance. 6th Edition, Williams & Wilkins. • Bray. Handbook of Obesity, Two-Volume Set / editors: George A. Bray, Claude Bouchard. - Third edition. - Boca Raton : CRC Press, 2014. - 1 online resource. - ISBN 978-1-4822-1070-5. Furthermore relevant websites, research and review articles will be used.

BGZ2024
Period 4
13 Feb 2023
7 Apr 2023
Print course description
ECTS credits:
9.0
Instruction language:

Bachelor Health Sciences

English
Coordinator:

- R.C.R. Meex

Keywords:
macronutrients, micronutrient, healthy diet, digestion, energy storage and utilisation, obesity, insulin resistance, chronic metabolic diseases, microbiota, biomarkers, preventive strategies
Fac. Health, Medicine and Life Sciences

Narrative Review BGZ

Full course description

In the bachelor Biology and Health, the students study a broad variety of topics to reach a general understanding on many topics. 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 10 years old. Therefore, we designed a parallel module, which is designed to give students the opportunity to investigate a topic until state-of-the-art. To investigate a topic thoroughly you need time and expert guidance, because in depth guidance is only possible if the instructor is a specialist in the field. So, we designed a writing assignment, covering a whole semester, where you are guided by fellow students and an expert in the field.

During the whole second semester of the ‘Biology and Health’ track, the students meet in tutorial groups every two weeks, under supervision of an expert tutor. During this assignment 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

Course objectives

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

BGZ2241
Period 4
13 Feb 2023
7 Jul 2023
Print course description
ECTS credits:

Bachelor Health Sciences

3.0
Instruction language:
English
Coordinator:

- S.A.S. Langie

Teaching methods:
Work in subgroups, Paper(s), Research
Assessment methods:
Assignment, Attendance, Final paper
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 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

Anatomy, histology, and physiology • Marieb EN, Hoehn KN. Human anatomy & physiology (8th Edition). Harlow, United Kingdom: Pearson Education Limited, 2016. • Paulsen F, Waschke J. Sobotta atlas of human anatomy: musculoskeletal system, internal organs, head, neck, neuroanatomy (15th Edition). Elsevier Urban & Fisher, 2011. • Mescher AL, Junqueira LC. Junqueira's basic histology: text and atlas (15th edition). New York: McGraw-Hill Education, 2018 • Silverthorn DU. Human Physiology: an integrated approach (7th edition). Harlow, United Kingdom: Pearson Education Limited, 2016. Epidemiology • De Vet HCW, Terwee CB, Mokkink LB, Knol DL. Measurement in medicine. Cambridge: Cambridge University Press, 2011. • COnsensus-based Standards for the selection of health status Measurement Instruments (COSMIN) https://www.cosmin.nl/tools/cosmin-taxonomy-measurement-properties/ Exercise physiology • Kenney WL, Wilmore JH, Costill DL. Physiology of sport and exercise (6th edition). Champaign: Human Kinetics Publishers, 2015. • McArdle WD, Katch FI, Katch VL. Exercise Physiology: energy, nutrition, and human performance (8th edition). Philadelphia: Lippincott Williams & Wilkins, 2015. Exercise, physical activity, and health • American College of Sports Medicine. ACSM's resource manual for guidelines for exercise testing and prescription (7th edition). Philadelphia: Lippincott Williams & Wilkins, 2013. • American College of Sports Medicine. ACSM's guidelines for exercise testing and prescription (10th edition). Philadelphia: Lippincott Williams & Wilkins, 2018. • Kenney WL, Wilmore JH, Costill DL. Physiology of sport and exercise (6th edition). Champaign: Human Kinetics Publishers, 2015. • McArdle WD, Katch FI, Katch VL. Exercise Physiology: energy, nutrition, and human performance (8th edition). Philadelphia: Lippincott Williams & Wilkins, 2015. Measurement of physical activity, physical fitness, and performance • American College of Sports Medicine. ACSM's resource manual for guidelines for exercise testing and prescription (7th edition). Philadelphia: Lippincott Williams & Wilkins, 2013. • Morrow JR, Mood DP, Disch JG, Kang M. Measurement and evaluation in human performance (5th edition). Champaign: Human Kinetics, 2016. Physical activity and exercise training in the prevention and rehabilitation of chronic diseases • Ehrman JK, Gordon PM, Visich PS, Keteyian SJ. Clinical exercise physiology (4th Edition). Champaign: Human Kinetics, 2019. • Moore GE, Durstine JL, Painter PL. ACSM's exercise management for persons with chronic diseases and disabilities (4th edition). Champaign: Human Kinetics, 2016.

BGZ2025
Period 5
10 Apr 2023
9 Jun 2023
Print course description
ECTS credits:
10.0
Instruction language:
English

Bachelor Health Sciences

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 ammended 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 clincal 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

1. Module manual "The Basic Principles of Pharmacology"
2. H.P. Rang and M.M. Dale: Pharmacology. 8 and 9th edition, Elsevier, 2015/19. Several copies are available at the library's "study landscape". The book is online accessible via clincalkeys.com.
3. B.G. Katzung and A. J. Trevor: Basic and clinical pharmacology. 13th edition, Mc Graw Hill, 2015. Accessible online via accessmedicine.mhmedical.com
4. Goodman & Gilman`s: The pharmacological basis of therapeutics. 13th edition. Mc Graw Hill 2017 Accessible online via accessmedicine.mhmedical.com
5. Relevant medical books on human anatomy, physiology and pathophysiology available in the liberary's "study landscape" or online via accessmedicine.mhmedical.com
6. Search engines such as PubMed to find up-to-date scientific (review) articles.

BGZ2026
Period 6
12 Jun 2023
7 Jul 2023
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)
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
10 Apr 2023
12 May 2023
Print course description
ECTS credits:
6.0

Bachelor Health Sciences

Instruction language:
Dutch
Coordinator:

- H.E. Popeijus

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
5 Sep 2022
28 Oct 2022
Print course description
ECTS credits:
9.0
Instruction language:
Dutch
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
5 Sep 2022
28 Oct 2022
Print course description
ECTS credits:
1.0
Instruction language:
Dutch

Bachelor Health Sciences

Coordinator:

- N. de Jong

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
31 Oct 2022
23 Dec 2022
Print course description
ECTS credits:
11.0
Instruction language:
Dutch
Coordinator:

- M.J.C. Hiligsmann

Fac. Health, Medicine and Life Sciences

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
9 Jan 2023
3 Feb 2023
Print course description
ECTS credits:
6.0
Instruction language:
Dutch
Coordinator:

- M.H.C. Bleijlevens

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 assessement 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

In the module students will make use of scientific articles and basic literature on QoC. In addition, an E-reader will be available that contains literature (books and articles) not available in the University Library. All literature is in English. Selection of the literature: - Nash DB, Maulik SJ, Ransom ER, Ransom SB (2019). The healthcare quality book: vision, strategy, and tools. Health Administration Press, Chicago; AUPHA Press, Washington, DC. - Melnyk B and Fineout-Overholt E (2005). Evidence-based practice in nursing and health care: a guide to best practice. Lippincott, Williams & Wilkins, Philadelphia - Polit DF and Beck CT. (2021). Nursing research. Generating and assessing evidence for nursing practice. Wolters Kluwer. Lippincott Williams & Wilkins, 11th edition.

BMZ2024
Period 4
13 Feb 2023
7 Apr 2023
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:

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 concept of entrepreneurship;
- Organisational and managerial theory.

Application of knowledge and insight
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 entrepreneurial, organisational, managerial capacities (cf. "knowledge and insight").

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

Bachelor Health Sciences

- 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

Selected chapters from different textbooks are used:

- Osterwalder A, Pigneur Y (2010). Business Model Generation. A handbook for Visionaries, Game Changers, and Challengers. Hoboken (NJ), John Wiley & Sons.
- Osterwalder A et al (2014). Value Proposition Design: How to Create Products and Services Customers Want. Hoboken (NJ), John Wiley & Sons.
- Entrepreneurial management (in progress)
- Organisation and management (in progress)

In addition, an e-reader is used containing a selection of scientific articles and a selection of textbooks not available in the University Library Maastricht.
All literature used in this module is in English.

BMZ2025
Period 5
10 Apr 2023
9 Jun 2023
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:
Entrepreneurship, Organisation, Management, project work, Creativity, out-of-the-box and innovation.
Fac. Health, Medicine and Life Sciences

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:

- 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

In the module students will make use of scientific articles and basic literature on models for diffusion and implementation, including: - Wensing M, Grol R, Grimshaw J (2020). Improving patientcare: The implementation of change in health care. Third edition. Oxford: Wiley Blackwell. - Rogers, E. (2003). Diffusion of innovations 5th edition. New York: The Free Press. - Greenhalgh, T., Robert, G., Bate, P., Kyriakidou, O., Macfarlane, F., & Peacock, R. (2004) How to spread good ideas. A systematic review of the literature on diffusion, dissemination and sustainability of innovations in health service delivery and organisation. http://www.clahrc-lyb.nihr.ac.uk/research-and-development/trip-lab/how_to_spread_good_ideas.pdf All literature will be in English.

BMZ2026
Period 6
12 Jun 2023
7 Jul 2023
Print course description
ECTS credits:
6.0
Instruction language:
English
Coordinator:

- M.H.C. Bleijlevens

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

Bachelor Health Sciences

Assessment methods:
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
10 Apr 2023
12 May 2023
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
5 Sep 2022
28 Oct 2022
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
5 Sep 2022
28 Oct 2022
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 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

GGZ2022
Period 2
31 Oct 2022
23 Dec 2022
Print course description
ECTS credits:
9.0
Instruction language:
Dutch
Coordinator:

- N.M. Geschwind

Fac. Health, Medicine and Life Sciences

The Clinical Interview II

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

GGZ2222
Period 2
31 Oct 2022
23 Dec 2022
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 3
9 Jan 2023
3 Feb 2023
Print course description
ECTS credits:
6.0
Instruction language:
Dutch
Coordinator:

- P. Dibbets

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, practical sessions are organized throughout the course in which students get hands-on experience with 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.

Bachelor Health Sciences

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
13 Feb 2023
7 Apr 2023
Print course description
ECTS credits:
6.0
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

Addiction

Full course description

During this module, students will study addiction in a multidisciplinary manner. Students will acquire knowledge about the clinical picture of addiction and they will study different theories that explain the etiology and maintenance of adiction. Students will also learn about the different evidence-based treatments available for addiction. Throughout the module, emphasis is given to critical thinking and forming opinions by integrating and comparing the different perspectives on addiction.

Course objectives

Knowledge and insight

Following the module, the B-GW student will have knowledge and insight into:

- the clinical picture of addiction;
- the biological, cognitive and economic approaches to addiction;
- support for and against the most common models of addiction;
- addiction treatment.

Application of knowledge and insight

Following the module, the B-GW student will be able to:

- form an evidence-based opinion regarding the models of addiction;
- critically read and judge the quality of empirical research articles.

Forming opinions

Following the module, the B-GW student will be able to critically appraise:

- the merits and limitations of theoretical models of addiction;
- the quality of empirical research on addiction.

Communication

Following the module, the B-GW student will be able to:

- formulate an evidence-based opinion concerning the etiology and maintenance of addiction;
- provide an argumentation, with arguments for and against, for the different persectives on addiction.

Learning skills

Following the module, the B-GW student will possess the necessary skills to:

- assess addictive behaviour as part of a complex psychopathological problem and as a single problem
- critically read and appraise research papers on addiction;
- formulate and defend an evidence-based opinion about addiction and addiction theories.

Recommended reading

E-reader

GGZ2029
Period 4
13 Feb 2023
7 Apr 2023
Print course description
ECTS credits:
4.0
Instruction language:
English
Coordinator:

- K.M.P.I. Houben

Teaching methods:
Lecture(s), PBL
Assessment methods:
Attendance, Written exam
Keywords:
Addiction; diagnosis; etiological theories; evidence-based treatment
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

Next to the textbook of Emmelkamp & Ehring (2014): The Wiley Handbook of Anxiety Disorders (1st Edition), additional texts are included in an e-reader. Here up-to-date learning, cognitive and biological models of the different anxiety disorders are represented. These texts are subdivided into ‘basic texts’ and ‘extra texts’. The ‘extra texts’ are for students that want to deepen their understanding. The content of the ‘basic texts’ will be tested in the final test. Skills literature (Dutch) Hermans, D., Eelen, P, Orlemans, H. (2007). Inleiding tot de gedragstherapie. Bohn Stafleu van Loghum, Houten [SL WM 425] Skills literature SCID (English) • First, M. B., Williams, J. B. W., Karg, R. S., & Spitzer, R. L. (2016). Structured Clinical Interview for DSM-5® Disorders - Clinician Version (SCID-5-CV). Arlington: American Psychiatric Association Publishing. • First, M. B., Williams, J. B. W., Karg, R. S., & Spitzer., R. L. (2016). User's Guide for the Structured Clinical Interview for DSM-5® Disorders - Clinician Version (SCID-5-CV). Arlington: American Psychiatric Association Publishing. • First, M. B., Williams, J. B. W., , S. L., & Spitzer, R. L. (2016). Structured Clinical Interview for DSM-5® Personality Disorders (SCID-5-PD). Arlington: American Psychiatric Association Publishing. • First, M. B., Williams, J. B. W., Benjamin, S. L., & Spitzer, R. L. (2016). User’s Guide for the Structured Clinical Interview for DSM-5 Personality Disorders (SCID-5-PD). Arlington: American Psychiatric Association Publishing.

Bachelor Health Sciences

GGZ2024
Period 5
10 Apr 2023
9 Jun 2023
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 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 problem inventory, problem cluster and 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

Skills literature (Dutch) Korrelboom, K., & Ten Broeke, E. (2004) Geintegreerde cognitieve gedragstherapie. Handboek voor theorie en praktijk. Coutinho, Bussum. Hermans, D., Eelen, P, Orlemans, H. (2007). Inleiding tot de gedragstherapie. Bohn Stafleu van Loghum, Houten [SL WM 425] Skills literature (English students) First M; Spitzer R; Gibbon M; Williams J User’s guide for the Structured Clinical Interview for DSM-IV Axis I Disorders Clinician version (2000) American Psychiatric Press Washington DC First M; Spitzer R; Gibbon M; Williams J User’s guide for the Structured Clinical Interview for DSM-IV Axis II Disorders (1997) American Psychiatric Press Washington DC

GGZ2224
Period 5
10 Apr 2023
9 Jun 2023
Print course description
ECTS credits:
2.0
Instruction language:
English
Coordinator:

- D. van Heugten - van der Kloet

Bachelor Health Sciences

Teaching methods:
Assignment(s), Lecture(s), Patientcontact, 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 transparant 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;
- 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.

Bachelor Health Sciences

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

Bijttebier, P., ter Laak, J., & Vertommen, H. (2019). The diagnostic process. In: Luteijn, F., & Barelds, D. (editors). Psychodiagnostics in healthcare. Boom uitgevers: Amsterdam. https://www.boomhogeronderwijs.nl/media/21/inkijkexemplaar_psychological_diagnostics_in_health_care.pdf

GGZ2030
Period 6
12 Jun 2023
7 Jul 2023
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
10 Apr 2023
12 May 2023
Print course description
ECTS credits:
5.0
Instruction language:
Dutch
Coordinator:

- M.V.E. Dewitte

Bachelor Health Sciences

Fac. Health, Medicine and Life Sciences

Vormbehoud Klinische Vaardigheden

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

GGZ3225
Period 5
10 Apr 2023
9 Jun 2023
Print course description
ECTS credits:
1.0
Instruction language:
Dutch
Coordinator:

- R.H. Kreutzkamp

Prevention and Health

Fac. Health, Medicine and Life Sciences

Challenges in Public Health

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

PGZ2021
Period 1
5 Sep 2022
28 Oct 2022
Print course description
ECTS credits:
8.0
Instruction language:
Dutch
Coordinator:

- K.M.H.H. Bessems

Fac. Health, Medicine and Life Sciences

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
5 Sep 2022
28 Oct 2022
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 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

PGZ2022
Period 2
31 Oct 2022
23 Dec 2022
Print course description
ECTS credits:
10.0
Instruction language:
Dutch
Coordinators:

- J.S. Gubbels
- F.E.K. Schneider

Fac. Health, Medicine and Life Sciences

Practical Skills Systematic Health Promotion

Bachelor Health Sciences

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

PGZ2222
Period 2
31 Oct 2022
23 Dec 2022
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 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

PGZ2023
Period 3
9 Jan 2023
3 Feb 2023
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 programma is taught in Dutch. Hence, the programme information is only available in

Bachelor Health Sciences

Dutch. If you would like to read the Dutch programme information, please choose ‘NL’ at the top of the website

PGZ2223
Period 3
9 Jan 2023
3 Feb 2023
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 skils). 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

The recommended literature for this module includes:

- 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.

Professional edition. http://www.merckmanuals.com/professional Per problem covered in this module, specific literature will be indicated in the reference list accompanying the problem.

PGZ2024
Period 4
13 Feb 2023
7 Apr 2023
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.

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. Professional edition. http://www.merckmanuals.com/professional

Specific literature will be offered through Reference list.

PGZ2224
Period 4
13 Feb 2023
7 Apr 2023
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 attention for the local policy process (the process in organisations (occupational health), Public Health organisations 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 organisation 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 3 of the Training Practicing policy skills for local public health contexts; parts 4 and 5 of this training focus on the more practical skills such as cooperation, negotiation, writing, and MT&S, and are 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 organisation 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.

Recommended reading

- Guest, C., Ricciardi, W, Kawachi, I & Lang, I. (Eds). (2013) Oxford Handbook of Public Health

Practice (3rd ed.). Oxford: Oxford University Press. (E-book)
- Buse, K., Mays, N., Walt, G. (2012). Making health policy (2nd ed.). Maidenhead: McGraw-Hill Education. (E-book)
- Scott, W.R. (2008). Institutions and organizations (3rd ed.) Thousand Oaks, CA.: Sage. (SL HM 131.1, 2nd edition from 2001; chapter to be used in this module has not been changed)
- Stone, D.A. (2002) Policy paradox, the art of political decision-making. New York/London: Norton & Company. (SL JF 1525.D4)
- Detels, R., M., Karim, F. Baum, L. Li and A. Leyland (Eds.) (2021). Oxford Textbook of Global Public Health, 7th edition. Oxford: Oxford University Press. (E-book)

PGZ2025
Period 5
10 Apr 2023
9 Jun 2023
Print course description
ECTS credits:
10.0
Instruction language:
English
Coordinator:

- L.P. van Iperen

Teaching methods:
Assignment(s), Work in subgroups, Lecture(s), Paper(s), PBL, Presentation(s), Training(s), Working visit(s)
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 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

- Buse, K., Mays, N., Walt, G. (2012). Making health policy (2nd ed.). Maidenhead: McGraw-Hill Education. (E-book)
- Lewicki, R.J., Barry, B., & Saunders, D.M. (2007). Essentials of Negotiation. Boston: Mass.

PGZ2225
Period 5
10 Apr 2023
9 Jun 2023
Print course description
ECTS credits:
1.0
Instruction language:

Bachelor Health Sciences

English
Coordinator:

- A.B.A. Klabbers

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 basic realities: globalization and tradition. As the world globalizes, health threats and opportunities are also becoming more global. However, this trend coexists with a more traditional reality. Namely, as we look internationally, we see an enormous diversity in health status—and even in definitions of health and understandings of how it is best pursued—among the many cultures of the world.

This module is designed to give students insight into both basic realities, and hence the module's name: Public Health in International Context. In this module, we will explore how travel, migration, and climate change are giving rise to a new context in which infectious disease and other health threats are viewed. Further, we will consider the opportunities and barriers created by international cultural diversity for health care and public health activity.

The module covers four weeks and each week focuses on one particular theme. There are five set themes:1) Global health epidemiology and data sources, 2) Transnational health governance and development and 3) Mental health 4) Tobacco, and 5) Climate change. There is one open theme for which several seminar sessions will be organized together with and around the expertise of an international guest speaker who will visit us during the module.

In a group of approximately 6 students you will also conduct research mainly based on existing literature into one major public health problem at the international level (such as HIV, malaria or tuberculosis). You will report the results of this analysis in a group paper.

Recommended reading

The basic literature that will be used in this module is: • Birn, A., Pillay, Y. and T. Holtz (2009). Textbook of International Health: Global Health in a Dynamic World. New York: Oxford University Press. • Buse, K., Mays, N., and G. Walt (2005). Making Health Policy. Maidenhead: Open University Press. • Detels, R., Gulliford, M., & Karim Q. A. (Eds.) (2015). Oxford Textbook of Global Public Health. Oxford: Oxford University Press. Additional literature will be provided for each task and will be made available through the Reference list.

PGZ2026
Period 6
12 Jun 2023

Bachelor Health Sciences

7 Jul 2023
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
Fac. Health, Medicine and Life Sciences

Practical Skills Public Health in International Context

Full course description

The practical skills training includes three elements:

1. Training on the role of culture on health care and public health practice internationally. Culture and differences between (and within) cultures is an aspect interrelated with considering public health in an international perspective. In this training you will look at the important role of culture in defining how people define health and ill-health, as well as how they understand what determines health, what health related customs are and how health can therefore best be pursued. During this training you will work on an assignment around culture and cultural sensitivity of interventions and research in a group of six students. Findings will be presented in an oral presentation.
2. Training international collaboration. During this training you will learn about the facilitators and barriers of working with different nationalities. This training will consist of a theoretical and a practical part. The theoretical part will inform you on challenges of working with team members from different nationalities and cultural backgrounds. In addition, you will learn more about the impact nationality and culture can have on collaboration in teams.
3. A field visit to a refugee center.

PGZ2226
Period 6
12 Jun 2023
7 Jul 2023
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)

Bachelor Health Sciences

Assessment methods:
Attendance, Final paper, Presentation
Fac. Health, Medicine and Life Sciences

Implemention of Public Health Interventions

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

PGZ3025
Period 5
10 Apr 2023
12 May 2023
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
5 Sep 2022
28 Oct 2022
Print course description
ECTS credits:
8.0
Instruction language:
Dutch
Coordinator:

- S. Aarts

Bachelor Health Sciences

Fac. Health, Medicine and Life Sciences

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
5 Sep 2022
28 Oct 2022
Print course description
ECTS credits:
2.0
Instruction language:
Dutch
Coordinator:

- S. Aarts

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
31 Oct 2022
23 Dec 2022
Print course description
ECTS credits:
11.0
Instruction language:
Dutch
Coordinator:

- M.D. Spreeuwenberg

Fac. Health, Medicine and Life Sciences

Bachelor Health 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
9 Jan 2023
3 Feb 2023
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;

- 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, Bunger 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
13 Feb 2023
7 Apr 2023
Print course description
ECTS credits:
10.0
Instruction language:

Bachelor Health Sciences

English
Coordinator:

- H.C.A. Woodruff

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 discoveriesand innovations in healthcare. Data science is an emerging field that focuses on theprocesses and systems that enable us to extract knowledge or insight from data invarious forms and to translate it into action. With techniques such as machine learningand artificial intelligence being used for prevention of diseases, defining patient profilesand 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 adata science project. The module is designed around the data science life-cycle and thetechniques and challenges into handling data analysis and management in healthcare.Students will gain knowledge on how to formulate a data research question and identifythe right dataset and methods needed to answer it. Students will become familiar withbasic data analysis algorithms, and will be able to visualize and interpret the results withregard to the data question/hypothesis. The module teaches basic programming skillsand how to apply them to perform the data science lifecycle: namely select, clean,analyze, visualize and interpret healthcare data. Each week, practical sessions will enablestudents 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
10 Apr 2023
9 Jun 2023
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).

DTZ2026
Period 6
12 Jun 2023
7 Jul 2023
Print course description
ECTS credits:
6.0
Instruction language:
English
Coordinator:

- R.M.M. Crutzen

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
10 Apr 2023
12 May 2023
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 (IB 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
6 Feb 2023
7 Apr 2023
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
Keywords:
regression analysis, quality of measurements, power, causality, bias, systematic review
Fac. Health, Medicine and Life Sciences

De Arena van Gezondheidswetenschappers – Debat en Filosofische Reflectie

Full course description

This study programme is taught in Dutch. Hence, the programme information is only available in

Bachelor Health Sciences

Dutch. If you would like to read the Dutch programme information, please choose ‘NL’ at the top of the website

GZW3224
Period 4
6 Feb 2023
7 Apr 2023
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
10 Apr 2023
9 Jun 2023
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 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

Bachelor Health Sciences

GGZ3026
Year
5 Sep 2022
31 Aug 2023
Print course description
ECTS credits:
11.0
Instruction language:
Dutch
Coordinator:

- M.M. Hanssen

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
5 Sep 2022
31 Aug 2023
Print course description
ECTS credits:
11.0
Instruction language:
Dutch
Coordinator:

- P.T. van Assema

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

BMZ3026
Year
5 Sep 2022
31 Aug 2023
Print course description

Bachelor Health Sciences

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
5 Sep 2022
31 Aug 2023
Print course description
ECTS credits:
11.0
Instruction language:
Dutch
Coordinator:

- H.E. Popeijus

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
5 Sep 2022
31 Aug 2023
Print course description
ECTS credits:
11.0
Instruction language:
Dutch
Coordinator:

Bachelor Health Sciences

- M.E.A.L. Kroese

Minor

Minor

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:

- 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.

GZW3015
Period 3
9 Jan 2023
3 Feb 2023
Print course description
ECTS credits:
6.0
Instruction language:
English
Coordinator:

- D.M.R. Townend

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

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

Bachelor Health Sciences

Period 1
3 Oct 2022
4 Nov 2022
Print course description
ECTS credits:
3.0
Instruction language:
Dutch
Fac. Health, Medicine and Life Sciences

Werkplekleren 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.

EDM3001
Period 4
6 Feb 2023
7 Apr 2023
Print course description
ECTS credits:
5.0
Instruction language:
Dutch
Coordinators:

- J.H.J. Vernooy
- H.E. Popeijus

Fac. Health, Medicine and Life Sciences

Critical Review of a Biomedical Intervention

Full course description

This 4-week course is part of the minor program and focusses on biomedical interventions. In the first 8-week course of the minor programme, the focus has been on global diversity in interventions as well as on epidemiological aspects from both individual and population point of view. The second 8-week course of the minor programme addressed the molecular depth of various interventions. During both 8-week courses, the focus of the three trajectories was either drugs, nutrition or physical activity.

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.

Bachelor Health Sciences

Course objectives

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

Recommended reading

- A 24-step guide on how to design, conduct, and successfully publish a systematic review and meta-analysis in medical research | SpringerLink
- PRISMA (prisma-statement.org)
- PRISMA 2020 explanation and elaboration: updated guidance and exemplars for reporting systematic reviews | The BMJ 4. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews | The BMJ

BBS3003
Period 3
9 Jan 2023
3 Feb 2023
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 narrative 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.

BBS3013
Period 1
5 Sep 2022
28 Oct 2022
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)

Bachelor Health Sciences

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, pregnancy, transplantation and vaccination) will be studied in an integrated way during the project week and integration assignment.

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 relatedpathophysiology:

1. Hypersensitivity (incl allergy and autoimmunity)
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 functionof 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

Books (recommendation): ● Abbas, A. K., Lichtman, A. H., Pillai, S., & Baker, D. L. (2022). Cellular and molecular immunology (Tenth). Elsevier. ● Abbas, A. K., Lichtman, A. H., Pillai, S., & Baker, D. L. (2020). Basic immunology: functions and disorders of the immune system (Sixth). Elsevier. Articles (mandatory for journal club): ● Bijnen M et al. Adipose tissue macrophages induce hepatic neutrophil recruitment and macrophage accumulation in mice. Gut 2018 Jul;67(7):1317-1327.. ● Sarkar S et al. Hypoxia induced impairment of NK cell cytotoxicity against multiple myeloma can be overcome by IL-2 activation of the NK cells. Plos One 2013 May 28;8(5):e64835. ● Vanderlocht et al. Increased tumor-specific CD8+ T cell induction by dendritic cells matured with a clinical grade TLR-agonist in combination with IFN-gamma. Int J Immunopathol Pharmacol 2010;23(1):35-50. ● Cloosen S et al. Expression of tumor-associated differentiation antigens, MUC1 glycoforms and CEA, in human thymic epithelial cells: implications for self-tolerance and tumor therapy. Cancer Res 2007 Apr 15;67(8):3919-3926. ● Gomez A et al. Proteasome inhibition with Bortezomib depletes plasma cells and specific autoantibody production in primary thymic cell cultures from early-onset Myastenia Gravis patients. J Immunol 2014;193:1055-1063.

BBS3014
Period 1
5 Sep 2022
28 Oct 2022
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

Bachelor Health Sciences

Neurosciences and Control

BBS3015
Period 1
5 Sep 2022
28 Oct 2022
Print course description
ECTS credits:
12.0
Instruction language:
English
Coordinator:

- M. Mané Damas

Fac. Health, Medicine and Life Sciences

Pharmacological Interventions

BBS3016
Period 1
5 Sep 2022
28 Oct 2022
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.

BBS3023
Period 2
31 Oct 2022
23 Dec 2022
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.

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

Microbiology / Prescott 12th edition, 2022 Cellular and Molecular Immunology / Abbas 10th edition, 2021 (ISBN 9780323757485)

BBS3024
Period 2
31 Oct 2022
23 Dec 2022
Print course description
ECTS credits:
12.0
Instruction language:
English
Coordinator:

- J. Penders

Teaching methods:
Assignment(s), Work in subgroups, Lecture(s), Paper(s), PBL, Presentation(s), Research, Skills
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.

BBS3025
Period 2
31 Oct 2022
23 Dec 2022
Print course description
ECTS credits:
12.0
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)
Fac. Health, Medicine and Life Sciences

Environmental Health and Analytical Chemistry

Full course description

Epidemiological studies have linked several environmental pollutants to increased risks of developing (chronic) diseases in humans. For instance, increased levels of particulate air pollution during lifetime are associated to higher risks of developing asthma, but also lung cancer. Moreover, higher levels of heavy metals such as lead or pesticides, ingested through e.g. contaminated food, can increase the risk of developing neurodegenerative disease like Parkinson's and Alzheimer's disease in later life. Identifying these toxicological risks and subsequently to manage these is crucial for human health. This minor course will focus on understanding the influences and impact of environmental factors on humans. The course core concept is based on the risk governance framework wherein the main focus will be on the research information and needs within this framework.

Course objectives

The course will cover 5 main topics that will support the understanding of this framework:

1. Basic understanding of the principles of toxicology: What is toxicity, how can we classify different compounds (e.g. PFAS, PCB's, PAH's) for e.g. carcinogenicity, how are we exposed (Environment-effect chain), what is the dose response relationship etc.
2. Understanding of different study designs to assess toxicity and the differences and (dis)advantages if comparing human epidemiology, animal and in vitro (cellular: 2D/3D models, non-cellular) studies.
3. (NMR, MS and ESR/EPR spectroscopy). For most techniques a side-visit to see the analytical techniques will be included. Theoretical and practical insight into different analytical tools used in toxicology research, namely electrophoresis (gel-, affinity-, capillary- and immuno-electrophoresis) and spectroscopy
4. Data-analysis and applications of (toxico)genomics and in-silico studies to assess toxicity, including a computer practical where students will be able to work on their own data-set for a specific compound
5. Understanding of the risk governance framework for risk assessment and management of (complex) risks, with air pollution as an example.

Practical skills:
Practical performing ESR/EPR spectroscopy and computer practical for analysis of toxicogenomics datasets, as well as site-visits for demonstration of the analytical techniques on-site. You will conduct you own Toxicogenomics project, thereby working on actual research data comprising human demographic and exposure data as well as high-dimensional transcriptomics data derived from human blood cells. The aim of the project is to decipher the molecular impact of environmental pollutants on human health. Therefore, you will apply fundamental bioinformatics and statistics approaches to identify genes and pathways which may contribute to the chain of events connecting environmental exposure to increased risk of chronic diseases. Moreover, the results will be interpreted with respect to improving our understanding of the pathogenesis of environmentally-induced diseases, identifying at-risk populations, and potentially discovering of pre-clinical markers of disease related to environmental exposures

Bachelor Health Sciences

BBS3026
Period 2
31 Oct 2022
23 Dec 2022
Print course description
ECTS credits:
12.0
Instruction language:
English
Teaching methods:
Assignment(s), Work in subgroups, Lecture(s), Paper(s), PBL, Presentations, Research, Skills, Training(s), Working visit(s)
Assessment methods:
Assignment, Attendance, Final paper, Participation, Presentation
Keywords:
environmental, Health, risk governance framework, analytical techniques, bioinformatics, chromatography, mass spectrometry