Filters used for the printout

Curriculum period: 2025-26. Studies included in the printout: Study modules and courses. Languages of the descriptions: English. Language of the printout template: English.

MH30_002 Master's Programme in Translational Medicine

MH30_002 Translationaalisen lääketieteen maisteriohjelma

MH30_002 Magisterprogrammet i translationell medicin

2025-26

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	120 cr
Languages	English
Grading scale	Pass-Fail
Content approval required	no
Locations	⚠ [information missing]
University	University of Helsinki
Responsible organisation	Faculty of Medicine 100%
Responsible persons	Tiina Immonen, Responsible teacher Tiina Immonen, Administrative person Milla Kasurinen, Administrative person
Degree programme type	Master's Degree
Degree titles	Master of Science
Study field	Fields of education (Ministry of Education and Culture), Medical science
Education classification	772601 Master of Science, Translational Medicine

Content description

EN: Programme profile

TRANSMED accepts students from suitable educational backgrounds, such as life sciences and natural sciences, engineering, psychology etc. Students' diverse backgrounds together with their TRANSMED studies give them a unique skill set for future careers. The curriculum is organized in close collaboration with researchers and units in the Faculty of Medicine and the Helsinki University Hospital, culminating in clinical rounds in the Helsinki University Hospital.

Students learn to use the terminology and to discuss the key concepts of translational research in medical sciences. The two study tracks - Translational Research and Health Industry and Innovations - provide a solid basis for careers in medical research or in commercial enterprises in the field of human health. All students attend a course in career planning, which increases their awareness of different career options and helps them to recognise, express and market their individual competencies.

Working life skills

TRANSMED curriculum includes an obligatory Career development –course, which is organized in collaboration with the Career services. Depending on the study track, studies include internship in a research group or company. Students may further develop their working life skills by participating in an interdisciplinary project, in student tutoring or in the administration of the university or a student organisation. These experiences are credited in the degree.

TRANSMED participates in the Helsinki International Trainee Programme (HITP) mentoring programme to promote the skills of international students to find employment in the health sector industry in Finland.

Internationality competencies

TRANSMED is an international programme with an intake of both Finnish and foreign students from all over the world. The studies provide many opportunities for interaction with students and teachers with varying cultural and language backgrounds.

Students have a chance for an international exchange period, preferably during the second year. The optimal timing depends on the schedules of the individual study plan. During the international mobility period student can complete coursework to be included in the degree as optional studies, or complete a Master's thesis or internship either in a research group or in a company.

TRANSMED accepts a limited number (5 in a year) of incoming exchange students in the spring term.

Continuous learning

TRANSMED graduates have advanced skills in information retrieval and critical reading of scientific literature. They are also able to follow and participate in discussions related to a variety of medical and health care topics. This forms a solid basis for continuous learning.

Sustainability skills

TRANSMED studies prepare students for careers in translational research or in health care enterprises and industry. Both study tracks are closely related to Good health and well-being, one of the sustainable development goals set by the United Nations, and sustainability awareness is an important part of future careers in this field.

To increase their awareness and knowledge of the sustainability goals, all students may include 5 cr of sustainability courses to their degree (SUST-001 Sustainability Course, module B and SUST-002-PHARM Sustainable Health), in their optional studies.

Assessment practices

The grading scale is 0-5, or pass-fail when appropriate. The assessment can be based on an exam, oral presentation, written assignment, quiz, learning diary, group work, project work, class activity, teacher statements based on observation, or on any combination of these or other relevant assessment methods as described for each course. Teachers are encouraged to use formative assessment during courses to give feedback to students on their learning.

Written examinations are electronic.

Criteria for full-time and part-time studies, opportunities for distance learning, if any

The programme is based on full-time studies. Although some courses may be offered partially or in full through distance learning, the degree cannot be completed through distance learning.

Practices for collecting and processing student feedback

Course feedback is collected with Norppa feedback system systematically across curriculum. In addition, teachers may collect other type of feedback on their own courses. The responsible teachers review the feedback from their own courses and discuss it with students. The programme director has access to the Norppa –course feedback from all TRANSMED courses.

Students are invited to answer the HowULearn-survey 3 on teaching and learning in period IV of their first study year during the TMED-907 Laboratory Medicine and Molecular Diagnostics course. International students are invited to participate in the International Student Barometer survey and TRANSMED graduates are invited to participate in the University of Helsinki career surveys.

The different forms of student feedback are annually reviewed and discussed by the TRANSMED board.

Curriculum structure

Transition from older degree requirements

Students who have started their studies before 1.8.2023 will have an opportunity to complete their studies according to their current 2020-2023 curriculum until 31 July 2025. A table indicating how to complete studies of the old curriculum during this transfer period will be provided.

The 120 cr Master's Degree in Translational Medicine includes

• 35 credits of obligatory studies in Foundations in Translational Medicine. This includes also an obligatory career planning course which supports the choice of study track.

• At least 65 credits of advanced studies, either in the study track Translational Research or in the study track Health Industry and Innovations. These advanced studies include a 30 cr Master's thesis.

• Optional studies can be study track –specific or include suitable studies completed in another university or degree programme. Also transferable skills such as working life skills, language studies, studies in academic writing or studies in sustainability skills can be included.

• The degree includes a personal study plan.

Second language studies

Those who have completed a Baccalaureate in Finnish or Swedish in Finland, but have not completed second language studies in Finnish/Swedish in the Bachelor's degree, need to complete 3 cr (CEFR B1) of their second language.

Optional studies under the Flexible Study Rights Agreement (JOO)

All Finnish universities are parties to the Flexible Study Rights Agreement (JOO), which provides graduate students of Finnish universities the opportunity to incorporate courses from other universities into their degrees. Flexible studies are free of charge for students.

The applications of TRANSMED students to conduct studies in other Finnish Universities can be supported by the Faculty of Medicine provided that the University of Helsinki offers no similar studies and that the studies will be incorporated in the Master of Science in Translational Medicine degree. The Faculty of Medicine can endorse applications for not more than the maximum scope of optional studies in the degree, through a recommendation from the TRANSMED coordinator. The receiving university will decide whether to accept the application. The application can be submitted electronically (www.joopas.fi) at any time during the academic year.

A student at another Finnish university can apply for the right to conduct studies in TRANSMED. To be considered, the student's home university must endorse the application. The Dean may grant the study right based on statement from the TRANSMED director. During the consideration of the application, attention will focus on available teaching resources and possible limitations on course attendance.

TRANSMED, together with the Master's Programme in Neuroscience, has a study collaboration agreement with Aalto University. The collaborating programmes in Aalto University are the Master's Degree Programme in Life Science Technologies (major Biomedical Engineering and major Human Neuroscience and Technology) and Doctoral Programme in Science. This agreement allows students to apply study rights of maximum of two years to the participating programmes in another university and to participate in courses, if agreed by the responsible teachers, without costs to either student or his/her university.

The recommended order and timing of studies

· Foundations in Translational Medicine are recommended to be completed during the first study year.

· The obligatory traineeships/Advanced Research Methods are recommended to be completed during the 1st study year or during the summer before 2nd study year.

· The Clinical Rounds and Master's thesis are to be completed during the 2nd study year.

· Master's thesis seminars are attended from the beginning of studies.

· Exchange studies are recommended to be completed during the 2nd study year.

Learning outcomes

EN: Key learning outcomes and aim of the degree

Upon graduation, all students will have deeper understanding of at least two of the following fields: cancer, regenerative medicine, metabolic disorders, translational psychiatry, nervous system disorders or infection biology.

Students can work at the interface of research, clinics and industry. Students have the capacity to critically analyse scientific literature and are aware of the regulatory and ethical aspects of translational research. Students also learn the basics of communicating research findings to the public.

Students learn to produce new scientific information in the field of translational medicine, and gain knowledge to apply this information in future research or in commercial or health care applications.

Study track Translational Research

In the Translational Research track, students gain experience in working as a member of a research group. They are able to formulate research questions, apply current methodologies, produce and present scientific results and discuss their own findings. They are well equipped for doctoral studies and careers in science, in health industry or expert positions in the public sector.

Study track Health Industry and Innovations

In the Health Industry and Innovations track, students gain insight into innovation processes and business opportunities in health industry. They also have the opportunity to learn about pharmaceutical development from basic research to clinical trials.

Students gain experience in working in a company setting, and are encouraged to produce a Master's thesis as a commission. Study track Health Industry and Innovations also provides all the competencies required for doctoral studies.

Professional competencies and qualifications

None.

Additional information

EN: Job descriptions and labour market of graduated students

Health sciences and translational medicine are of growing importance in providing solutions to the challenges imposed by the aging population, the costs of health care, the recurring pandemics and the health threats induced by environmental and climate change. Thus, the global demand for well-trained specialists in the field of translational medicine is likely to increase, providing excellent career prospects.

Recruitment to health and bioindustry positions can occur already at the graduate (MSc) level. MSc-entry level positions in health and bioindustry include titles such as product manager, product specialist or clinical research associate.

Continuation into doctoral studies after graduation is the basis for academic careers in translational research, but also allows for careers in industry.

Student admission

Admission to the Master's Programme in Translational Medicine is part of the admission process of the International Master's Programmes in the University of Helsinki. See Studyinfo.fi

Postgraduate study options/opportunities

Master's Programme in Translational Medicine only accepts students through the separate international master's programme admission process of the University of Helsinki (Studyinfo.fi).

Both study tracks, Translational Research and Health Industry and Innovations, provide excellent basis for doctoral studies and all graduates are eligible to enrol to PhD programmes both in Finland and abroad, including the following doctoral programmes at the University of Helsinki:

Doctoral Programme in Biomedicine

Doctoral Programme in Population Health

Doctoral Programme in Clinical Research

Doctoral Programme in Drug Research

Doctoral Programme in Integrative Life Sciences

Doctoral Programme Brain & Mind (B&M)

TRANSMED graduates are also eligible to apply for PhD programmes at other universities, in Finland and abroad.

Programme-specific procedures for the recognition and validation of prior learning

Recognition of prior learning: https://studies.helsinki.fi/instructions/article/recognition-prior-learning

Substitution of TRANSMED courses with prior formal education is based on careful comparison of the scopes and contents of the courses. The decision (accepted, accepted with partial substitution, or rejected) is made by the responsible teacher of the respective TRANSMED course.

Studies used for crediting need to be valid on the date of graduation (not older than 10 years).

Graduation practices and criteria

See studies.helsinki.fi, https://studies.helsinki.fi/instructions/article/graduation

Student guidance, tutoring and supervision

All TRANSMED students get study guidance both in groups and individually from TRANSMED coordinator at the start of their studies. Every student should complete one feasible personal study plan in SISU during period I of the 1st study year. Change of study track requires creation of an acceptable updated personal study plan in Sisu. Upon graduation, all requirements of the selected study track have to be met.

The description of the guidance and the supervision in Master's Programme in Translational Medicine is published in the instructions for students and in the instructions for teachers:

https://studies.helsinki.fi/instructions/article/study-planning-and-supervision

https://teaching.helsinki.fi/instructions/article/psp-guidance-provided-supervising-teacher

Degree level (first-, second-, third-cycle/European Qualifications Framework (EQF) level)

Second-cycle /EQF level 7

DEGREE STRUCTURE

Part of the degree	Credits
MASTER'S PROGRAMME IN TRANSLATIONAL MEDICINE	120 cr
TMED-010 FOUNDATIONS OF TRANSLATIONAL MEDICINE	29-35 cr
MAT12001 Basics of statistics and R I	5 cr
TMED-915 Introduction to Bioinformatics	5 cr
TMED-902 Human Anatomy and Physiology I	5 cr
TMED-903 Human Anatomy and Physiology II	5 cr
TMED-904 ABCs of Medical Genetics	3 cr
TMED-907 Laboratory Medicine and Molecular Diagnostics	3 cr
TMED-932 Basic Pharmacology and Toxicology	3 cr
TMED-926 Reading and Popularising Translational Research	2 cr
MPHARM-004 Research ethics	1 cr
TMED-901 Career Development	3 cr
STUDY TRACK (grouping module)	
TMED-020 STUDY TRACK TRANSLATIONAL RESEARCH	min 65 cr
TMED-991 Master's Thesis	30 cr
TMED-992 Advanced Research Methods	10 cr
TMED-995 Maturity Exam	0 cr
TMED-990 FROM BENCH TO BEDSIDE	5 cr
TMED-994 Translational Medicine Thesis Seminar	2 cr
TMED-993 Clinical Rounds	3 cr
TMED-993X Clinical Cases	3 cr
TMED-011 MECHANISMS OF HUMAN DISEASE	min 10 cr
TMED-103 Cancer from Biology to Research	5 cr
TMED-105A Pathologic Basis of Disease A	3 cr
TMED-105B Pathologic Basis of Disease B	1 cr
TMED-205 Environmental Epigenetics Across Human Life Course	5 cr
TMED-303 Metabolic Disorders from Aetiology to Therapy	5 cr
TMED-406 Translational Psychiatry	5 cr
TMED-503 Infection Biology	5 cr
NEU-521 Basic mechanisms of nervous system diseases	1-5 cr
TMED-407 Recent advances in Neuroscience and Psychobiology	2 cr
ELECTIVES IN TRANSLATIONAL RESEARCH, MIN. 10 CR (grouping module)	
TMED-021 Research Proposal Examination	5 cr
TMED-022 Imaging in Science and Medicine	5 cr
TMED-917 Introduction to Systems Biology	5 cr
TMED-024 Translational Flow Cytometry	2 cr
TMED-927A Next-generation Sequencing and Single-cell Technologies in Biomedicine	5 cr

- **TMED-927B** Next-generation Sequencing and Single-cell Technologies Lab Course 1 cr
- **TMED-023** Epidemiology – Basic concepts and practical analyses 5 cr
- **NEU-603** Laboratory animal science 1-5 cr
- **LSI36001** Clinical data mining 5 cr
- **LSI36002** Systems medicine seminar 5 cr
- **NEU-415** Creative scientific thinking 5 cr
- **NEU-416** Creative scientific project 2-5 cr

OPTIONAL COURSES IN TRANSLATIONAL RESEARCH (grouping module)

- **TMED-106** Novel applications for precision medicine 2 cr
- **TMED-104** Book Examination (Cancer) 8 cr
- **TMED-204** Book Examination (Regenerative Medicine) 5-10 cr
- **TMED-921** Book Exam: Alberts, Essential Cell Biology 6 cr
- **TMED-922** Participation and Presentation in Scientific Meeting 1-5 cr
- **TMED-925** Interdisciplinary Project Work 1-15 cr
- **TMED-929** Drug Discovery & Development with a Focus on Biologics 1-2 cr
- **PROV-503** Selected topics in clinical pharmacology 5 cr
- **GMB-305** Stem cells and organogenesis 5 cr
- **PSYM-542** Behavioural Genetics 5 cr
- **PSYK-415** Neuroplasticity and learning mechanisms in health and disease 5 cr
- **NEU-511** Systems and Cognitive Neuroscience 5 cr
- **NEU-531** Developmental neuroscience 5 cr
- **MED-MOOC85** Rethinking health 2 cr
- **TMED-603** Pre-SPARK Health Concept Discovery Program 5 cr
- **TMED-604** Helsinki Pre-incubator and Terkko Health Hub Programmes 1-5 cr

TMED-030 STUDY TRACK HEALTH INDUSTRY AND INNOVATIONS ..... min 65 cr

- **TMED-031** Traineeship 1 5 cr
- **TMED-032** Traineeship 2 5 cr
- **TMED-991** Master's Thesis 30 cr
- **TMED-990** FROM BENCH TO BEDSIDE ..... 5 cr
  - **TMED-994** Translational Medicine Thesis Seminar 2 cr
  - **TMED-993** Clinical Rounds 3 cr
  - **TMED-993X** Clinical Cases 3 cr
- **TMED-011** MECHANISMS OF HUMAN DISEASE ..... min 10 cr
  - **TMED-103** Cancer from Biology to Research 5 cr
  - **TMED-105A** Pathologic Basis of Disease A 3 cr
  - **TMED-105B** Pathologic Basis of Disease B 1 cr
  - **TMED-205** Environmental Epigenetics Across Human Life Course 5 cr
  - **TMED-303** Metabolic Disorders from Aetiology to Therapy 5 cr
  - **TMED-406** Translational Psychiatry 5 cr
  - **TMED-503** Infection Biology 5 cr
  - **NEU-521** Basic mechanisms of nervous system diseases 1-5 cr
  - **TMED-407** Recent advances in Neuroscience and Psychobiology 2 cr

ELECTIVES IN HEALTH INDUSTRY AND INNOVATIONS, MIN. 10 CR (grouping module)

- **TMED-601** HealthTech Linkage 10 cr
- **TMED-602** BioMed Based Business 3 cr

- **TMED-106** Novel applications for precision medicine 2 cr
- **TMED-929** Drug Discovery & Development with a Focus on Biologics 1-2 cr
- **TMED-925** Interdisciplinary Project Work 1-15 cr
- **MED-MOOC85** Rethinking health 2 cr
- **MPHARM-015** Introduction to pharmacoepidemiology and pharmacovigilance 5 cr
- **PROV-214** Basics of Clinical Trial Research 5 cr
- **PROV-503** Selected topics in clinical pharmacology 5 cr
- **PROV-910** Marketing authorisation for medicinal product and pharmacovigilance 5 cr
- **NEU-415** Creative scientific thinking 5 cr
- **TMED-604** Helsinki Pre-incubator and Terkko Health Hub Programmes 1-5 cr
- **TMED-603** Pre-SPARK Health Concept Discovery Program 5 cr

OPTIONAL COURSES IN HEALTH INDUSTRY AND INNOVATIONS (grouping module)

- **TMED-104** Book Examination (Cancer) 8 cr
- **TMED-204** Book Examination (Regenerative Medicine) 5-10 cr
- **TMED-921** Book Exam: Alberts, Essential Cell Biology 6 cr
- **TMED-922** Participation and Presentation in Scientific Meeting 1-5 cr
- **TMED-927A** Next-generation Sequencing and Single-cell Technologies in Biomedicine 5 cr
- **TMED-023** Epidemiology – Basic concepts and practical analyses 5 cr
- **NEU-603** Laboratory animal science 1-5 cr
- **LSI36001** Clinical data mining 5 cr
- **LSI36002** Systems medicine seminar 5 cr
- **NEU-415** Creative scientific thinking 5 cr
- **NEU-416** Creative scientific project 2-5 cr
- **GMB-305** Stem cells and organogenesis 5 cr
- **PSYM-542** Behavioural Genetics 5 cr
- **PSYK-415** Neuroplasticity and learning mechanisms in health and disease 5 cr
- **NEU-511** Systems and Cognitive Neuroscience 5 cr
- **NEU-531** Developmental neuroscience 5 cr

TMED-995 Maturity Exam 0 cr

TMED-040 OTHER STUDIES min 0 cr

- **TMED-001** Personal Study Plan 0 cr

WORKING LIFE SKILLS (grouping module)

- **TMED-919** Internship 5 cr
- **TMED-924** Internship Abroad 1-5 cr
- **MED-90** Tutoring 5 cr
- **MED-92** Medical Humanities 1-2 cr
- **MED-94** Participation in administrative bodies and student organisations 1-5 cr

SUSTAINABILITY SKILLS (grouping module)

- **SUST-001** Sustainability course 3 cr
- **SUST-002-PHARM** Sustainable Health 2 cr

STUDIES IN FOREIGN UNIVERSITY (grouping module)

- **TMED-923** Studies in Foreign University 1-25 cr

STUDIES IN OTHER FINNISH UNIVERSITY (grouping module)

- **TMED-931** Studies in Other Finnish Universities 1-25 cr

- STUDIES IN FINNISH, ENGLISH OR SWEDISH LANGUAGE (grouping module)
  - **TMED-041** SECOND LANGUAGE STUDIES 0-3 cr
    - FINNISH, SECOND LANGUAGE STUDIES (grouping module)
      - **KK-FINSK** Written Skills in the Second National Language, Finnish (CEFR B1) 1 cr
      - **KK-FINMU** Oral Skills in the Second National Language, Finnish (CEFR B1) 2 cr
    - SWEDISH, SECOND LANGUAGE STUDIES (grouping module)
      - **KK-RUERI** Oral Skills in the Second National Language, Swedish (CEFR B1) 2 cr
      - **KK-RUKIRJ** Written Skills in the Second National Language, Swedish (CEFR B1) 1 cr
  - ACADEMIC WRITING IN ENGLISH (grouping module)
    - **KK-ENG501** Academic Writing 1: Principles and Practice (Master's Students) (CEFR C1) 2 cr
    - **KK-ENG502** Academic Writing 2: Process and Feedback (Master's Students) (CEFR C1) 2 cr
  - OPTIONAL STUDIES IN FINNISH, SWEDISH OR ENGLISH (grouping module)
    - **SUO-111** Basic level Finnish 1A 3 cr
    - **SUO-112** Basic level Finnish 1B 2 cr
    - **SUO-121** Basic level Finnish 2A 3 cr
    - **SUO-122** Basic level Finnish 2B 2 cr
    - **SUO-131** Basic level Finnish 3A 3 cr
    - **SUO-130** Basic level Finnish 3 5 cr
    - **SUO-115** Intensive Finnish 1 8 cr
    - **SUO-125** Intensive Finnish 2 7 cr
    - OTHER LANGUAGE STUDIES (grouping module)
- FREELY CHOSEN STUDIES (grouping module)
  - **DIGI-A** Student's digital skills: orientation 2 cr
  - **DIGI-B** Student's digital skills: advanced skills 1 cr

FILTERED STUDY MODULES

TMED-010 Foundations of Translational Medicine

TMED-010 Foundations of Translational Medicine

TMED-010 Foundations of Translational Medicine

Curriculum period	2025-26
Validity period	since 1 Aug 2025
Credits	29-35 cr
Languages	English
Graded module	yes
Grading scale	General scale, 0-5
Content approval required	no
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Tiina Immonen, Responsible teacher
Study module level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Learning outcomes

EN: Students acquire the basic skills in biomedical, computational, and communication and group working skills for studies in translational medicine, and gain insight in assessing and describing their own skillsets for career planning and to support the selection of study track.

Additional information

EN: Target group: Compulsory for students of the Master's Programme in Translational Medicine

Timing: 1st study year

Contents:

MAT12001 Statistics and RI (Obligatory for students starting their studies 1.8.2023 or later)
TMED-915 Introduction to Bioinformatics, 5 cr Obligatory
TMED-902 Human Anatomy and Physiology I, 5 cr Obligatory
TMED-903 Human Anatomy and Physiology II, 5 cr Obligatory
TMED-904 ABCs of Medical Genetics, 3 cr Obligatory
TMED-907 Laboratory Medicine and Molecular Diagnostics, 3 cr Obligatory
TMED-932 Basic Pharmacology and Toxicology, 3 cr (Substitution with TMED-928, 2 cr possible) Obligatory
TMED-926 Reading and Popularizing Translational Research, 2 cr Obligatory
MPHARM-004 Research Ethics, 1 cr Obligatory
TMED-901 Career Development, 3 cr Obligatory

Study module structure	Credits
TMED-010 FOUNDATIONS OF TRANSLATIONAL MEDICINE	29-35 cr
MAT12001 Basics of statistics and R I	5 cr
TMED-915 Introduction to Bioinformatics	5 cr
TMED-902 Human Anatomy and Physiology I	5 cr
TMED-903 Human Anatomy and Physiology II	5 cr
TMED-904 ABCs of Medical Genetics	3 cr
TMED-907 Laboratory Medicine and Molecular Diagnostics	3 cr
TMED-932 Basic Pharmacology and Toxicology	3 cr
TMED-926 Reading and Popularising Translational Research	2 cr
MPHARM-004 Research ethics	1 cr
TMED-901 Career Development	3 cr

TMED-040 Other studies

TMED-040 Other studies

TMED-040 Other studies

Abbreviation: Other studies

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	min 0 cr
Languages	English
Graded module	yes
Grading scale	Pass-Fail
Content approval required	no
University	University of Helsinki

Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Tiina Immonen, Responsible teacher
Study module level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Content description

EN: Contents:
TMED-001 Personal Study Plan, Obligatory
Working life skills, Optional
Sustainability skills, Optional
Studies in Foreign University, Optional
Studies in Other Finnish University, Optional
Studies in Finnish, English, or Swedish language, Optional
Freely chosen studies, Optional

Study module structure	Credits
TMED-040 OTHER STUDIES	min 0 cr
TMED-001 Personal Study Plan	0 cr
WORKING LIFE SKILLS (grouping module)	
TMED-919 Internship	5 cr
TMED-924 Internship Abroad	1-5 cr
MED-90 Tutoring	5 cr
MED-92 Medical Humanities	1-2 cr
MED-94 Participation in administrative bodies and student organisations	1-5 cr
SUSTAINABILITY SKILLS (grouping module)	
SUST-001 Sustainability course	3 cr
SUST-002-PHARM Sustainable Health	2 cr
STUDIES IN FOREIGN UNIVERSITY (grouping module)	
TMED-923 Studies in Foreign University	1-25 cr
STUDIES IN OTHER FINNISH UNIVERSITY (grouping module)	
TMED-931 Studies in Other Finnish Universities	1-25 cr
STUDIES IN FINNISH, ENGLISH OR SWEDISH LANGUAGE (grouping module)	
TMED-041 SECOND LANGUAGE STUDIES	0-3 cr
FINNISH, SECOND LANGUAGE STUDIES (grouping module)	
KK-FINSK Written Skills in the Second National Language, Finnish (CEFR B1)	1 cr
KK-FINMU Oral Skills in the Second National Language, Finnish (CEFR B1)	2 cr
SWEDISH, SECOND LANGUAGE STUDIES (grouping module)	
KK-RUERI Oral Skills in the Second National Language, Swedish (CEFR B1)	2 cr
KK-RUKIRJ Written Skills in the Second National Language, Swedish (CEFR B1)	1 cr
ACADEMIC WRITING IN ENGLISH (grouping module)	
KK-ENG501 Academic Writing 1: Principles and Practice (Master's Students) (CEFR C1)	2 cr
KK-ENG502 Academic Writing 2: Process and Feedback (Master's Students) (CEFR C1)	2 cr
OPTIONAL STUDIES IN FINNISH, SWEDISH OR ENGLISH (grouping module)	
SUO-111 Basic level Finnish 1A	3 cr
SUO-112 Basic level Finnish 1B	2 cr

- **SUO-121** Basic level Finnish 2A 3 cr
- **SUO-122** Basic level Finnish 2B 2 cr
- **SUO-131** Basic level Finnish 3A 3 cr
- **SUO-130** Basic level Finnish 3 5 cr
- **SUO-115** Intensive Finnish 1 8 cr
- **SUO-125** Intensive Finnish 2 7 cr
- OTHER LANGUAGE STUDIES (grouping module)

FREELY CHOSEN STUDIES (grouping module)

- **DIGI-A** Student's digital skills: orientation 2 cr
- **DIGI-B** Student's digital skills: advanced skills 1 cr

TMED-020 Study Track Translational Research

TMED-020 Study Track Translational Research

TMED-020 Study Track Translational Research

Curriculum period	2025-26
Validity period	since 1 Aug 2025
Credits	min 65 cr
Languages	English
Graded module	yes
Grading scale	General scale, 0-5
Content approval required	no
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Tiina Immonen, Responsible teacher
Study module level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Learning outcomes

EN: Students gain experience in working as a member of a research group. They are able to formulate research questions, present scientific results and discuss their own findings. They learn and apply current methodologies and are well equipped for a smooth continuation in doctoral studies.

Additional information

EN: Target group
Students of the Master’s Programme in Translational Medicine; One of the two alternative study tracks

Timing

1st and 2nd study years

Contents
TMED-990 From Bench to Bedside, Obligatory
TMED-992 Advanced Research Methods, Obligatory
TMED-995 Maturity examination, Obligatory

TMED-991 Master’s Thesis, Obligatory
TMED-011 Mechanisms of Human Disease, Obligatory
Electives in Translational Research, Obligatory
Optional studies in Translational Research, Optional

Study module structure	Credits
TMED-020 STUDY TRACK TRANSLATIONAL RESEARCH	min 65 cr
TMED-991 Master's Thesis	30 cr
TMED-992 Advanced Research Methods	10 cr
TMED-995 Maturity Exam	0 cr
TMED-990 FROM BENCH TO BEDSIDE	5 cr
TMED-994 Translational Medicine Thesis Seminar	2 cr
TMED-993 Clinical Rounds	3 cr
TMED-993X Clinical Cases	3 cr
TMED-011 MECHANISMS OF HUMAN DISEASE	min 10 cr
TMED-103 Cancer from Biology to Research	5 cr
TMED-105A Pathologic Basis of Disease A	3 cr
TMED-105B Pathologic Basis of Disease B	1 cr
TMED-205 Environmental Epigenetics Across Human Life Course	5 cr
TMED-303 Metabolic Disorders from Aetiology to Therapy	5 cr
TMED-406 Translational Psychiatry	5 cr
TMED-503 Infection Biology	5 cr
NEU-521 Basic mechanisms of nervous system diseases	1-5 cr
TMED-407 Recent advances in Neuroscience and Psychobiology	2 cr
ELECTIVES IN TRANSLATIONAL RESEARCH, MIN. 10 CR (grouping module)	
TMED-021 Research Proposal Examination	5 cr
TMED-022 Imaging in Science and Medicine	5 cr
TMED-917 Introduction to Systems Biology	5 cr
TMED-024 Translational Flow Cytometry	2 cr
TMED-927A Next-generation Sequencing and Single-cell Technologies in Biomedicine	5 cr
TMED-927B Next-generation Sequencing and Single-cell Technologies Lab Course	1 cr
TMED-023 Epidemiology – Basic concepts and practical analyses	5 cr
NEU-603 Laboratory animal science	1-5 cr
LSI36001 Clinical data mining	5 cr
LSI36002 Systems medicine seminar	5 cr
NEU-415 Creative scientific thinking	5 cr
NEU-416 Creative scientific project	2-5 cr
OPTIONAL COURSES IN TRANSLATIONAL RESEARCH (grouping module)	
TMED-106 Novel applications for precision medicine	2 cr
TMED-104 Book Examination (Cancer)	8 cr
TMED-204 Book Examination (Regenerative Medicine)	5-10 cr
TMED-921 Book Exam: Alberts, Essential Cell Biology	6 cr
TMED-922 Participation and Presentation in Scientific Meeting	1-5 cr
TMED-925 Interdisciplinary Project Work	1-15 cr
TMED-929 Drug Discovery & Development with a Focus on Biologics	1-2 cr
PROV-503 Selected topics in clinical pharmacology	5 cr
GMB-305 Stem cells and organogenesis	5 cr
PSYM-542 Behavioural Genetics	5 cr
PSYK-415 Neuroplasticity and learning mechanisms in health and disease	5 cr

NEU-511 Systems and Cognitive Neuroscience	5 cr
NEU-531 Developmental neuroscience	5 cr
MED-MOOC85 Rethinking health	2 cr
TMED-603 Pre-SPARK Health Concept Discovery Program	5 cr
TMED-604 Helsinki Pre-incubator and Terkko Health Hub Programmes	1-5 cr

TMED-030 Study Track Health Industry and Innovations

TMED-030 Study Track Health Industry and Innovations

TMED-030 Study Track Health Industry and Innovations

Curriculum period	2025-26
Validity period	since 1 Aug 2025
Credits	min 65 cr
Languages	English
Graded module	yes
Grading scale	General scale, 0-5
Content approval required	no
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Tiina Immonen, Responsible teacher
Study module level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Learning outcomes

EN: Students gain insight into innovation processes and business opportunities in health industry. They also have the opportunity to learn pharmaceutical development from basic research to clinical trials. Students gain experience in working in a company setting, and are encouraged to produce a Master's thesis as a commission.

Additional information

EN: Target group
Students of the Master's Programme in Translational Medicine; One of the two alternative study tracks.

Timing

1st and 2nd study years

Contents

TMED-031 Traineeship 1, Obligatory

TMED-032 Traineeship 2 Obligatory
TMED-990 From Bench to Bedside, Obligatory
TMED-995 Maturity examination, Obligatory
TMED-991 Master's Thesis, Obligatory
TMED-011 Mechanisms of Human Disease, Obligatory
Electives in Health Industry and Innovations, Obligatory
Optional studies in Health Industry and Innovations, Optional

Study module structure	Credits
TMED-030 STUDY TRACK HEALTH INDUSTRY AND INNOVATIONS	min 65 cr
TMED-031 Traineeship 1	5 cr

TMED-032 Traineeship 2	5 cr
TMED-991 Master's Thesis	30 cr
TMED-990 FROM BENCH TO BEDSIDE	5 cr
TMED-994 Translational Medicine Thesis Seminar	2 cr
TMED-993 Clinical Rounds	3 cr
TMED-993X Clinical Cases	3 cr
TMED-011 MECHANISMS OF HUMAN DISEASE	min 10 cr
TMED-103 Cancer from Biology to Research	5 cr
TMED-105A Pathologic Basis of Disease A	3 cr
TMED-105B Pathologic Basis of Disease B	1 cr
TMED-205 Environmental Epigenetics Across Human Life Course	5 cr
TMED-303 Metabolic Disorders from Aetiology to Therapy	5 cr
TMED-406 Translational Psychiatry	5 cr
TMED-503 Infection Biology	5 cr
NEU-521 Basic mechanisms of nervous system diseases	1-5 cr
TMED-407 Recent advances in Neuroscience and Psychobiology	2 cr
ELECTIVES IN HEALTH INDUSTRY AND INNOVATIONS, MIN. 10 CR (grouping module)	
TMED-601 HealthTech Linkage	10 cr
TMED-602 BioMed Based Business	3 cr
TMED-106 Novel applications for precision medicine	2 cr
TMED-929 Drug Discovery & Development with a Focus on Biologics	1-2 cr
TMED-925 Interdisciplinary Project Work	1-15 cr
MED-MOOC85 Rethinking health	2 cr
MPHARM-015 Introduction to pharmacoepidemiology and pharmacovigilance	5 cr
PROV-214 Basics of Clinical Trial Research	5 cr
PROV-503 Selected topics in clinical pharmacology	5 cr
PROV-910 Marketing authorisation for medicinal product and pharmacovigilance	5 cr
NEU-415 Creative scientific thinking	5 cr
TMED-604 Helsinki Pre-incubator and Terkko Health Hub Programmes	1-5 cr
TMED-603 Pre-SPARK Health Concept Discovery Program	5 cr
OPTIONAL COURSES IN HEALTH INDUSTRY AND INNOVATIONS (grouping module)	
TMED-104 Book Examination (Cancer)	8 cr
TMED-204 Book Examination (Regenerative Medicine)	5-10 cr
TMED-921 Book Exam: Alberts, Essential Cell Biology	6 cr
TMED-922 Participation and Presentation in Scientific Meeting	1-5 cr
TMED-927A Next-generation Sequencing and Single-cell Technologies in Biomedicine	5 cr
TMED-023 Epidemiology – Basic concepts and practical analyses	5 cr
NEU-603 Laboratory animal science	1-5 cr
LSI36001 Clinical data mining	5 cr
LSI36002 Systems medicine seminar	5 cr
NEU-415 Creative scientific thinking	5 cr
NEU-416 Creative scientific project	2-5 cr
GMB-305 Stem cells and organogenesis	5 cr
PSYM-542 Behavioural Genetics	5 cr
PSYK-415 Neuroplasticity and learning mechanisms in health and disease	5 cr

NEU-511 Systems and Cognitive Neuroscience	5 cr
NEU-531 Developmental neuroscience	5 cr
TMED-995 Maturity Exam	0 cr

TMED-990 From Bench to Bedside

TMED-990 From Bench to Bedside

TMED-990 From Bench to Bedside

Abbreviation: From Bench to B

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2019
Credits	5 cr
Languages	English
Graded module	yes
Grading scale	General scale, 0-5
Content approval required	no
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Tiina Immonen, Responsible teacher
Study module level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Learning outcomes

EN: The student will learn to understand diseases, disease outcomes and therapeutic strategies, be familiar with the functions in a university hospital, and be able to communicate with the clinicians and scientists in the field. In addition, students will learn to present and discuss their won translational research project.

Prerequisites

EN: TMED-902 Human Anatomy and Physiology I
TMED-903 Human Anatomy and Physiology II
TMED-907 Laboratory Medicine and Molecular Diagnostics
TMED-932 Basic Pharmacology and Toxicology
At least one course in the Mechanisms of Human Disease

Additional information

EN: Target group
Compulsory in the Master’s Programme in Translational Medicine; for TRANSMED students only

Timing

2nd study year

Contents

TMED-994 Master's Thesis Seminars (obligatory)
TMED-993 Clinical Rounds (obligatory) or TMED-993X (obligatory)

Grading scale

0-5 (weighted mean)

Study module structure	Credits
TMED-990 FROM BENCH TO BEDSIDE	5 cr
TMED-994 Translational Medicine Thesis Seminar	2 cr
TMED-993 Clinical Rounds	3 cr
TMED-993X Clinical Cases	3 cr

TMED-011 Mechanisms of Human Disease

TMED-011 Mechanisms of Human Disease

TMED-011 Mechanisms of Human Disease

Curriculum period	2025-26
Validity period	since 1 Aug 2025
Credits	min 10 cr
Languages	English
Graded module	yes
Grading scale	General scale, 0-5
Content approval required	no
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Tiina Immonen, Responsible teacher
Study module level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Learning outcomes

EN: Student must obtain sufficient understanding and be able to describe and understand the mechanisms of human disease in two or more medical fields.

Additional information

EN: Teacher coordinating the module
Tiina Immonen

Language of instruction

English

Target group

Compulsory for students of the Master’s Programme in Translational Medicine

Timing

1st and 2nd study years

Contents

TMED-103 Cancer From Biology to Research 5 cr, Alternative
TMED-105A Pathologic Basis of Disease, 3 cr, **or** TMED-105B Pathologic Basis of Disease, 1 cr Alternative
TMED-205 Environmental Epigenetics Across Human Life Course, 5 cr, Alternative
TMED-303 Metabolic Disorders From Aetiology to Therapy 5 cr, Alternative
TMED-406 Translational Psychiatry 5 cr, Alternative
TMED-503 Infection Biology 5 cr, Alternative
NEU-521 Basic Mechanisms of Nervous System Disorders 1 or 5 credits, Alternative

Assessment practices and criteria

Grading scale 1–5 (weighted mean)

Credit transfer instructions

EN: ALSO ACCEPTED:
TMED-402 Neuroscience and Psychobiology Journal Club, 2 cr

TMED-202 Regenerative Medicine From Bench to Bedside, 5 cr

Study module structure	Credits
TMED-011 MECHANISMS OF HUMAN DISEASE	min 10 cr
TMED-103 Cancer from Biology to Research	5 cr
TMED-105A Pathologic Basis of Disease A	3 cr
TMED-105B Pathologic Basis of Disease B	1 cr
TMED-205 Environmental Epigenetics Across Human Life Course	5 cr
TMED-303 Metabolic Disorders from Aetiology to Therapy	5 cr
TMED-406 Translational Psychiatry	5 cr
TMED-503 Infection Biology	5 cr
NEU-521 Basic mechanisms of nervous system diseases	1-5 cr
TMED-407 Recent advances in Neuroscience and Psychobiology	2 cr

TMED-041 Second language studies

TMED-041 Second language studies
TMED-041 Second language studies

Abbreviation: Second language studies

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	0-3 cr
Languages	Swedish, Finnish
Graded module	no
Grading scale	⚠ [information missing]
Content approval required	no
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Tiina Immonen, Responsible teacher
Study module level	Basic studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Content description

EN: Those who have completed a Baccalaureate in Finnish or Swedish in Finland, but have not completed second language studies in Finnish/Swedish in the Bachelor's degree, need to complete 3 cr (CEFR B1) of their second language.

Additional information

EN:

- Oral Skills in the Second National Language, Finnish KK-FINNMU 2, Optional

- Written Skills in the Second National Language, Finnish KK-FINSK 1, Optional
- Oral Skills in the Second National Language, Swedish KK-RUERI 2, Optional
- Written Skills in the Second National Language, Swedish KK-RUKIRJ 1, Optional

Study module structure	Credits
TMED-041 SECOND LANGUAGE STUDIES	0-3 cr
FINNISH, SECOND LANGUAGE STUDIES (grouping module)	
KK-FINSK Written Skills in the Second National Language, Finnish (CEFR B1)	1 cr
KK-FINMU Oral Skills in the Second National Language, Finnish (CEFR B1)	2 cr
SWEDISH, SECOND LANGUAGE STUDIES (grouping module)	
KK-RUERI Oral Skills in the Second National Language, Swedish (CEFR B1)	2 cr
KK-RUKIRJ Written Skills in the Second National Language, Swedish (CEFR B1)	1 cr

FILTERED COURSES

MAT12001 Basics of statistics and R I

MAT12001 Tilastotiede ja R tutuksi I
MAT12001 Statistik och R-programvara I

Abbreviation: TiltuR I

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	5 cr
Languages	English, Finnish, Swedish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Bachelor's Programme in Mathematical Sciences 100%
Responsible person	Petteri Piiroinen, Responsible teacher
Study level	Basic studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Equivalences to other studies

AYMAT12001 Open uni: Basics of statistics and R I

or

57773 Introduction to Statistics and R-programming

Completion method and assessment items Recurrence	Credits
Method 1	5 cr
Participation in teaching	5 cr
Method 2	5 cr
Exam	5 cr
Method 3	5 cr
Independent study	5 cr

Method 4 5 cr
- Open uni: Participation in teaching 5 cr

Method 5 5 cr
- OU: Participation in teaching 5 cr

Method 6 5 cr
- Participation in teaching 5 cr

TMED-915 Introduction to Bioinformatics

TMED-915 Introduction to Bioinformatics

TMED-915 Introduction to Bioinformatics

Abbreviation: Intro to Bioinf

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	5 cr
Languages	English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Jing Tang, Responsible teacher
Study level	Intermediate studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Prerequisites

EN: MAT12001 Basics of statistics and R I or similar

Equivalences to other studies

30277 Introduction to Bioinformatics

Learning outcomes

EN: The student will be able to understand and evaluate scientific articles that use bioinformatics, program in the R language at the level of using available packages, and analyse high-throughput data.

Content

EN: Pre-processing of data, statistical analysis, clustering/prediction

Additional information

EN:

Target group

Students of the Master’s Programme in Translational Medicine. The course is open also to MSc, MD and PhD students in the University of Helsinki.

Timing

Period III, first or second study years of the Master’s studies

Completion methods

Lectures 10 h
Weekly exercises 10 h

Independent study and project work 100 h

Activities and teaching methods in support of learning

Lectures, weekly exercises, exam/project work

Assessment practices and criteria

Weekly exercises (50%) and exam/project work (50%). Grading scale 1–5.

Responsible person

Associate professor Jing Tang

Study materials

EN: Lecture material, selected articles

Completion method and assessment items	Recurrence	Credits
Method 1		5 cr
Participation in teaching		5 cr

TMED-902 Human Anatomy and Physiology I

TMED-902 Human Anatomy and Physiology I
TMED-902 Human Anatomy and Physiology I

Abbreviation: Human Anatomy a

Curriculum periods	2024-25, 2025-26
Validity period	since 1 Aug 2024
Credits	5 cr
Languages	English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Arja Pasternack, Responsible teacher
Study level	Intermediate studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Prerequisites

EN: Basic knowledge of biochemistry and cell biology is mandatory in physiology. Participation requires passing an entrance exam that tests the central concepts of biochemistry and cell biology. You pass the exam by getting at least 50% of answers correct.

Equivalences to other studies

30270 Human organ systems and tissues

Equivalences (free text field)

EN: TMED-902 and TMED-903 (Human Anatomy and Physiology I and II) replace30270 Human Organ Systems and Tissues, 10 cr.

Learning outcomes

EN: Anatomy: students will be able to use anatomical terms correctly. They are able describe the topographic anatomy of main human organs and how they are connected through circulation. Students can describe overall structures in the musculoskeletal system and analyze movements at the synovial joints. Students can describe and discuss the main components of the central and peripheral nervous system and describe most important components of brain circulation.
Physiology: students can describe and discuss how skeletal muscle contract and produce movement, and how muscle actions are regulated by reflex arcs. They understand how neurons generate impulses and the body uses them to communicate and regulate various organ functions. The students can describe the general principle of generating sensations and how they are delivered to the central nervous system.

Content

EN: Anatomy: Anatomical terminology, anatomical position, basic circulation and anatomical body plan, macroscopic anatomy of the nervous system, musculoskeletal system and abdominal and thoracic viscera including the serosa membranes.
Physiology: Basic functions nervous and muscular systems: molecular basis of excitability, how excitability is regulated, and these systems integrated into a functional entity. Topics covered include examples of the neurons, sensory systems, and musculoskeletal systems. Physiological lab exercises are used to practice applying the theory, learning to measure physiological responses and interpret the obtained data.

Participation to brain dissection demo is voluntary but highly recommended.

Additional information

EN:

Target group

Students of the Master's Programme in Translational Medicine

Timing

Period I, 1st study year. The course is arranged annually.

Completion methods

Completion requires compulsory attendance in all TBL and physiology lab exercises, lectures, and a passing grade on the exam. The passing limit for the examinations is 50% of the maximum score. The attendance to the contact teaching is compulsory. Unexplained absence of two contact-teaching sessions (TBL/exercise/microscopy) will fail the course. An absence must be compensated by a substitutive assignment given by the teacher. Consult your teacher as soon as possible for substitutive assignment.

This course cannot be completed by distance learning

TBL sessions 21 h containing short lectures (5 x 45 min)
Hands-on physiology laboratory exercises anatomy brain dissection demo 12 h
Independent study 99 h
Exam 3 h

Contents

Anatomy: Anatomical terminology, anatomical position, basic circulation and anatomical body plan, macroscopic anatomy of the nervous system, musculoskeletal system and abdominal and thoracic viscera including the serosa membranes.

Physiology: Basic functions nervous and muscular systems: molecular basis of excitability, how excitability is regulated, and these systems integrated into a functional entity. Topics covered include examples of

the neurons, sensory systems, and musculoskeletal systems. Physiological lab exercises are used to practice applying the theory, learning to measure physiological responses and interpret the obtained data.

Participation to brain dissection demo is voluntary but highly recommended.

Prerequisites

Basic knowledge of biochemistry and cell biology is mandatory in physiology. Participation requires passing an entrance exam that tests the central concepts of biochemistry and cell biology. You pass the exam by getting at least 50% of answers correct.

Activities and teaching methods in support of learning

This course is built on Team-based learning method, which is used throughout the course, supported by short lectures, exercises, and demos. The teachers continuously evaluate the students' active participation, and the students take readiness assurance tests (RATs) in each TBL session through the course to provide immediate feedback.

Assessment practices and criteria

The assessment is based on both formative and summative assessment. Final examination is used for summative assessment. The final grade is based on an exam. The grading scale is from 0 to 5. For grade 1, the student must have at least 50% of the answers correct from the exam.

The grading scale is from 0 to 5. For grade 1, the student must have at least 50% of the answers correct.

Relations to other study units

TMED-902 and TMED-903 (Human Anatomy and Physiology I and II) replace 30270 Human Organ Systems and Tissues, 10 cr.

Responsible teacher

University lecturer Arja Pasternack, physiology

Study materials

EN: We use Moodle as a learning platform. Most of the leaning objects, learning materials and information can be found in the Moodle.
For anatomy, we use Gray's Anatomy for Students (Drake R.L., Vogl W., Mitchell A.W.M.), 4th edition. (2020). Elsevier. This resource available as an e-book through Terkko Book Navigator service.

For physiology, we use Physiology (Costanzo L.), 6th edition (2018). Elsevier. This resource available as an e-book through Terkko Book Navigator service.

In addition, the teachers could provide current articles and other literature as supplementary materials. For each practical exercise, written instructions about the experiment, data acquisition as well as some additional theoretical background about the ongoing measurements are provided.

Medical Physiology, 2nd or 3rd edition (Boron and Boulpaep), and any human anatomy atlas (we recommend Netter's Atlas of Human Anatomy, 6th or 7th edition) is encouraged to be used as supplementary reading throughout the course. These books are also available as e-books through Terkko Book Navigator.

Completion method and assessment items	Recurrence	Credits
Method 1		5 cr

Participation in teaching 5 cr

TMED-903 Human Anatomy and Physiology II

TMED-903 Human Anatomy and Physiology II
TMED-903 Human Anatomy and Physiology II

Abbreviation: Human Anatomy a

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	5 cr
Languages	English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Pauli Turunen, Responsible teacher
Study level	Intermediate studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Prerequisites

EN: Attendance in TMED-902 Human Anatomy and Physiology I is required.

Equivalences to other studies

30270 Human organ systems and tissues

Equivalences (free text field)

EN: TMED-902 and TMED-903 (Human Anatomy and Physiology I and II) replace 30270 Human Organ Systems and Tissues, 10 cr.

Learning outcomes

EN: The students will be able to describe basic anatomy of the heart, kidneys, lungs, digestive tract (+ associated organs), and endocrine organs. They understand how the heart, kidney, digestive system, and lungs functions. Students are able to discuss how these organ functions are integrated, as well as how nervous and endocrine systems regulate these functions to maintain homeostasis of the body. The students will be able to apply basic scientific knowledge to understand the mechanisms of disease processes and the principles of treating them during future TRANSMED courses. In addition, they will be able to compare different cell and tissue types from histological preparations by virtual and traditional microscopy.

Content

EN: Basic concepts of how different organ systems are anatomically constructed: how they perform their essential functions and how their specific structure explains function, how nervous system and hormones regulate these functions, and how these different systems finally integrate into a functional entity, the human body. We go through the cardiovascular system, the kidney and urine production, the respiratory system, the digestive system, and the endocrine system. Physiological exercises (blood pressure measurement, EKG, and spirometry) apply the learned concepts into practice. White blood cell count of the student's own blood sample by microscopy analysis.

Additional information

EN: Target group
Students of the Master's Programme in Translational Medicine

Timing

Period II, 1st study year. The course is arranged annually.

Completion methods

The completion of this course requires active attendance in all TBL and microscopy sessions, physiology lab exercises, and a passing grade on the exam. The passing limit for the examinations is 50% of the maximum score. The attendance to the contact teaching is compulsory. Unexplained absence of two contact-teaching sessions (TBL/exercise) will fail the course. An absence must be compensated by a substitutive assignment. Consult your teacher as soon as possible for substitutive assignment.

This course cannot be completed by distance learning.

- TBL sessions 15 h including short lectures (5 x 45 min)
- Hands-on physiology and anatomy laboratory exercises 9 h
- Independent study 100 h
- Exam 3 h

Activities and teaching methods in support of learning

TBL is used throughout the course, supported by short lectures, exercises, and dissection demos. The teachers continuously evaluate the students' active participation, and readiness assurance tests (RAT) results throughout the course to provide immediate feedback. Participation to anatomy dissection is voluntary but highly recommended. Participation to physiology lab work is compulsory.

Assessment practices and criteria

The assessment is based on both formative and summative assessment. An examination is used for summative assessment. The final grade is based on the exam. The grading scale is from 0 to 5. For grade 1, the student must have at least 50% of the answers correct.

Responsible teacher: University lecturer Pauli Turunen

Study materials

EN: This course uses Moodle platform as a learning environment where most of the material and instructions can be found.

• For anatomy, we use Gray's Anatomy for Students (Drake R.L., Vogl W., Mitchell A.W.M.), 4th edition. (2020). Elsevier. This resource available as an e-book through Terkko Book Navigator service

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• For physiology, we use Physiology (Costanzo L.), 6th edition (2018). Elsevier. This resource available as an e-book through Terkko Book Navigator service.

In addition, the teachers could provide current articles and other literature as supplementary materials. For each practical exercise, written instructions for the conducting experiment, data acquisition and theoretical background about the ongoing measurement are in the Moodle.

Medical Physiology, 2nd or 3rd edition (Boron and Boulpaep), and any human anatomy atlas (e.g. Netter's Atlas of Human Anatomy, 6th or 7th edition) are encouraged to be used as a supplementary reading material throughout the course.

Completion method and assessment items	Recurrence	Credits
Method 1		5 cr
Participation in teaching		5 cr

TMED-904 ABCs of Medical Genetics

TMED-904 ABCs of Medical Genetics

TMED-904 ABCs of Medical Genetics

Abbreviation: ABCs of Medical

Curriculum period	2025-26
Validity period	since 1 Aug 2025
Credits	3 cr
Languages	English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Anna-Elina Lehesjoki, Responsible teacher
Study level	Intermediate studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Prerequisites

EN: Signing of the MED-100 Confidentiality and information security commitment will be required from all participants.

Equivalences to other studies

30273 ABC of medical genetics

or

30512 ABC of Medical genetics

Learning outcomes

EN: At the end of the course, the student

- can explain the principles of monogenic and multifactorial inheritance of human diseases
- understands the role of genetic factors in human disease
- can explain the main points in the clinical presentation and the molecular background of representative genetic diseases
- knows the commonly used genetic diagnostic methods and their applications
- knows the principles of classification of genetic variants
- understands the genetic and epigenetic principles in cancer predisposition
- understands the importance of ethical issues related to the use of genetic information and approaches

Content

EN: This course gives an overview of modern medical genetics. The course will enable students to understand the main genetic principles and their applications in translational medicine. The topics of the lectures cover all parts of medical genetics from bench to bedside including

- Mendelian and multifactorial inheritance
- clinical genetics and genetic counselling
- current trends in clinical genetic testing

- interpretation of sequence variants in Mendelian diseases
- prenatal diagnosis
- gene therapies for rare diseases
- commercial gene tests
- cancer genetics and clinical cancer genetics
- epigenetics
- translational research approaches using a Mendelian and a multifactorial disease as an example

Additional information

EN: Target group: Students of the Master's Programme in Translational Medicine and the students of the Master's Programme in Life Science Informatics. The
maximum intake for the course is 50 students.

Timing: Period I, 1st study year. The course is organized annually.

Completion methods

Lectures combined with learning diaries; seminars on specific topics (e.g. inheritance patterns; interpretation of sequence variants in Mendelian diseases); interview of a patient or a relative of a patient with a rare disease followed by a poster presentation on the disease.

Activities and teaching methods in support of learning

Interactive lectures with post-lecture learning diaries to monitor learning of central concepts. Flipped classroom -type seminars to increase student engagement. A patient- /relative interview providing a unique possibility to learn a different perspective to rare diseases. Poster sessions including group work with students' own presentations and input and with teachers' feedback.

Assessment practices and criteria

The assessment will be carried out based on lecture activity (post-lecture learning diaries; 80% need to be answered); 100% attendance in seminars; 100% attendance in one patient interview and all poster sessions including own presentation.

Grading scale: Pass/fail

Other information: Responsible teacher professor Anna-Elina Lehesjoki.

Study materials

EN: Lecture handouts and selected review articles.
Suggested supplementary reading: Read & Donnai: New Clinical Genetics, Scion publishing, fourth edition, 2020

Completion method and assessment items	Recurrence	Credits
Method 1		3 cr
Participation in teaching		3 cr

TMED-907 Laboratory Medicine and Molecular Diagnostics

TMED-907 Laboratory Medicine and Molecular Diagnostics

TMED-907 Laboratory Medicine and Molecular Diagnostics

Abbreviation: Laboratory Medi

Curriculum period	2025-26
Validity period	since 1 Aug 2025
Credits	3 cr
Languages	English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Päivi Lakkisto, Responsible teacher
Study level	Intermediate studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Prerequisites

EN: TMED-909 Human Anatomy and Physiology, or equivalent

Equivalences to other studies

30281 Laboratory Medicine and Molecular Diagnostics

Learning outcomes

EN: The student will be able to

- Explain the basic principles of sampling and analysing biological specimens, and of interpreting laboratory data
- Recognise the basic laboratory tests for the main organ systems and diseases and describe the indications for these tests
- Describe the central methods of laboratory and molecular medicine, such as immunochemistry, flow cytometry, array technologies, mRNA and DNA analyses, and the possible sources of errors of these methods
- Define the principles of point-of-care testing, its limitations of use and possible sources of errors
- Outline how new diagnostic methods or tests are validated in a clinical laboratory
- Describe the role of the clinical laboratory in personalised medicine

Content

EN: The students become acquainted with selected analytes and central methods of laboratory and molecular medicine, and their functions in a hospital laboratory.
The course contains lectures covering the basic principles of laboratory medicine, basic laboratory tests for the main organ systems and diseases, central methods of laboratory medicine and molecular medicine including the validation of new diagnostic tests, and the role of the laboratory in personalised medicine. Some lectures contain interactive sections, patient case examples or preliminary assignments. In addition, the course offers hands-on training in common point-of-care tests, a thematic seminar about future prospects in clinical chemistry, laboratory visits or demonstrations, and online assignments.

Additional information

EN: Target group
1. Students of the Master’s Programme in Translational Medicine 2. students of Molecular and Analytical Health Sciences in the Master’s Programme in Genetics and Molecular Biosciences.

Timing

Period IV. Recommended for the 1st study year for TRANSMED students. The course is arranged annually.

Completion methods

Completion requires attendance in 80% of the lectures, attendance in all practicals and demos, completion of course assignments, and a passing grade on the final examination.

- Lectures 27 h
- Demos/ 1 h
- Practicals 2 h
- Self-study including online assignments 49 h
- Exam 2 h
- TOTAL 81 h

Activities and teaching methods in support of learning

Practical exercises, demonstrations and assignments

Assessment practices and criteria

Grading is based on the exam. The grading scale is 0–5.

Responsible teacher

Clinical teacher Päivi Lakkisto, MD, PhD

Study materials

EN: Lecture handouts. Henry's Clinical Diagnosis and Management by Laboratory Methods, 24th edition, Chapters 3–9, 11, 15, 17–19, 22-23, 25, 29, 31, 45 and 68 (available as an e-book in the Meilahti Campus Library Terkko)

Completion method and assessment items	Recurrence	Credits
Method 1		3 cr
Participation in teaching		3 cr

TMED-932 Basic Pharmacology and Toxicology

TMED-932 Basic Pharmacology and Toxicology

TMED-932 Basic Pharmacology and Toxicology

Curriculum period	2025-26
Validity period	since 1 Aug 2025
Credits	3 cr
Languages	English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Teemu Aitta-aho, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Prerequisites

EN: TMED-909 Human Anatomy and Physiology (TRANSMED students)

Equivalences to other studies

TMED-928 Basic Pharmacology

Equivalences (free text field)

EN: Substitutes TMED-928 Basic Pharmacology, 2 cr.

Learning outcomes

EN: After the course, students will understand the basics of pharmacodynamics, pharmacokinetics and pharmacogenetics, and will be able to apply this knowledge to research. In addition, they will receive more detailed knowledge of the drugs used in a few selected therapy areas.

Content

EN: - General principles of pharmacokinetics and pharmacodynamics
- Detailed analyses of the action of drugs, their side effects and clinical use in selected therapeutic areas
- Insights into the principles of pharmacogenetics, its research methods and applications in drug development and patient care
The selected therapeutic areas and drug actions may vary annually.

Additional information

EN: Target group:
1. Students of the Master's Programmes in Translational Medicine and 2. Pharmaceutical Research, Development and Safety. Number of participants is limited to 40 students.

Timing: Period II, first study year. The course is arranged annually.

Completion methods: Completion requires participation in all team-based learning and other sessions, completion of all assignments and a passing grade on the exam. Grading is based on individual readiness tests (iRATs) (50%) and the exam (50%).

Course info 1 h

Team-based learning and other interactive sessions 15 h

Self-study 63 h

Examination 2 h

Total 81 h

Activities and teaching methods in support of learning: A flipped classroom approach with team-based learning is used. The students become familiar with the topic prior to teaching. During the interactive sessions, students perform individual readiness tests, team-based readiness tests, discuss and apply their learning on lectures and medical cases.

Assessment practices and criteria: The course is graded on a scale of 0–5. Grading is based on individual readiness tests (iRATs) (50%) as well as the examination (50%).

Responsible teacher: University lecturer Teemu Aitta-aho.

Additional information: Substitutes TMED-928 Basic Pharmacology, 2 cr.

Study materials

EN: Recommended and required literature: Rang, Ritter, Flower and Henderson: Rang and Dale's Pharmacology. 10th edition, Elsevier, 2024. Selected chapters

Completion method and assessment items	Recurrence	Credits
Method 1		3 cr
Participation in teaching		3 cr

TMED-926 Reading and Popularising Translational Research

TMED-926 Reading and Popularising Translational Research

TMED-926 Reading and Popularising Translational Research

Abbreviation: Reading and Pop

Curriculum periods	2024-25, 2025-26
Validity period	since 1 Aug 2024
Credits	2 cr
Languages	English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Tiina Immonen, Responsible teacher
Study level	Intermediate studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Prerequisites

EN: Some experience in reading scientific articles is recommended.

Equivalences to other studies

30295 Reading and Writing High Impact Translational Medicine

Learning outcomes

EN: After the course, the student will have

- basic skills for analytical reading of scientific publications
- practice in scientific argumentation in writing
- knowledge on the scientific writing and publications processes, opportunities and challenges
- practice in popularizing about scientific results to the general public

Content

EN: Course contains an introduction session and four 3-hour seminars. In every seminar, the first two hours are chaired by an actively publishing research group leader. For the seminar, students read thoroughly one selected high quality recent scientific article authored by the seminar leader, and complete two home assignments: a layman summary and a structured analysis of the article along given guidelines
In the seminar the author first introduces the contents and main findings of the article. The author also discusses student's analyses and highlights the preparation and publication process of the specific article, discuss their strategies in publishing etc.

The last hour of the seminars is chaired by the course leader. This is an interactive section where students work in pairs to write press releases, on-line and journal news, social media postings etc. for varying audiences about the findings of the study.

Additional information

EN: Target group
Students of the Master´s Programme in Translational Medicine

Timing

Periods I-II, first study year. The course extends over two periods.

Completion methods

Completion requires attendance to course introduction and in all four seminars, and completion of all assignments.

Introduction to the course 2 h
Seminars 12 h
Independent study and assignments 40 h
Total 54 h

Activities and teaching methods in support of learning

Interactive seminars and feedback from seminar leaders and course leader, home assignments and group work in writing.

Assessment practices and criteria

Grading is based on the completed home assignments and attendance and group work in the seminars. Passing requires completion of all assignments, participation in group work, and attendance to all seminars. Grading scale pass-fail.

Responsible person

Senior university lecturer Tiina Immonen

Study materials

EN: Selected recent articles in the field of translational medicine.

Completion method and assessment items	Recurrence	Credits
Method 1		2 cr
Participation in teaching		2 cr

MPHARM-004 Research ethics

MPHARM-004 Research ethics

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	1 cr
Languages	English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Pharmaceutical Research, Development and Safety 100%
Responsible person	Leena Hanski, Responsible teacher
Study level	Intermediate studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

EN: No specific prior knowledge required.

Learning outcomes

EN:
On completion of the course, the participants can:

- recognise and analyse key research ethical questions within life sciences,
- recognise and understand key ethical principles guiding research and how they apply to research work,

- understand the Responsible Conduct of Research guidelines and Finnish processes for dealing with research misconduct,
- recognize research settings requiring research permits or ethical review,
- identify rights and responsibilities of a researcher,
- understand how ethical decisions and choices influence society and research community.

Content

EN: The topics covered within the course include good scientific practice and research integrity, ethical aspects of research involving human subjects, ethical aspects of using laboratory animals for research, ethical aspects of research involving stem cells and genetically modified organisms, ethics of scientific publishing and the role of science and scientists in society.

Additional information

EN: Completion methods
Individual course assignments and group assignments, peer review and discussion.

The course takes place online: study material and assignments are available in Moodle, where students also participate in peer review tasks. Course includes also scheduled online teaching sessions with compulsory attendance.

Assessment practices and criteria

The course completion requires:

- active engagement with the course material,
- completing compulsory assessment tasks The course evaluation is based on adequately achieving learning outcomes as evidenced in passing the learning assignments.

Evaluated as pass–fail.

Activities and methods in support of learning

The course is based on material available on the course platform. Course participants must complete assignments by given deadlines:

- quizzes about basic concepts
- writing assignments and reflection on given ethical challenges, giving peer feedback
- discussion board group activities

Target groups

Compulsory for the students in Master's programme in Pharmaceutical research, development and safety, Master's programme in Translational medicine and Master's programme in Genetics and molecular biosciences. Available as an optional course for students in master programme in Neurosciences.

Suitable for exchange students.

Timing

The course is offered twice a year, in periods II and IV. Recommended to be completed prior to a master thesis project.

EQF level

Master's / EQF level 7

Study materials

EN: The course reading material will be provided to the students during the course.

Completion method and assessment items	Recurrence	Credits
Method 1		1 cr
Participation in teaching		1 cr

TMED-901 Career Development

TMED-901 Career Development

TMED-901 Career Development

Abbreviation: Career Developm

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	3 cr
Languages	English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisations	Master's Programme in Neuroscience 50% Master's Programme in Translational Medicine 50%
Responsible person	Tiina Immonen, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Learning outcomes

EN: Students will be able to recognise, express and market their competences, skills and strengths as well as values related to working life. They will be aware of their career options as well as career goals and be able to plan their studies and future accordingly. They will be able to apply self-assessment and basic job hunting skills in their transitions both inside and outside of academia.
Specifically, students will be able to consider the implications of pursuing a doctoral degree for their intended career goals and will be aware of the academic requirements and procedures in doctoral training.

Content

EN:

- Self-assessment and job-hunting skills, including career planning, the preparation of application documents and job interviews
- Information interviews of selected career models and alumni, conducted by students
- Interactive career seminar with invited speakers from inside and outside academia
- The requirements of a PhD degree in the Faculty of Medicine and the Faculty of Biosciences, activities and training provided by doctoral programmes; procedures in enrolling for a PhD degree
- Learning café discussion with doctoral students
- Attendance at a dissertation
- Course summary and evaluation

Additional information

EN: Target group
Students of the Master’s Programmes in Translational Medicine, Neuroscience, and Pharmaceutical Research, Development and Safety

Timing

Period I. The course is arranged annually.

Completion methods

Attendance in all sessions, including the career seminar, learning café and dissertation defence, as well as the completion of all assignments, including the information interview, are required.

Career seminar 4 h
Interview 2 h
Attendance at a dissertation 2 h
Learning café 2 h
Interactive sessions 14 h
Independent work 58 h

Activities and teaching methods in support of learning

Students will take part in interactive sessions, interview selected career models and alumni, write a CV, do self-assessment assignments, practice job interviews, attend a doctoral dissertation, and discuss in with doctoral students.

Teachers discuss with students in interactive sessions and in career seminar, give feedback on the assignments, CV and the interviews, and answer questions in Moodle. Evaluation is based on course assignments (CV, information interviews, and other assignments).

Assessment practices and criteria

Evaluation is based on course assignments (CV, information interviews and other assignments). Attendance in all sessions and completion of all assignments are required.

The grading scale is pass/fail.

Completion: Completion of TMED-901 requires attendance to all sessions, including career seminar, learning café and dissertation, as well as completion of all assignments, including information interview. For TRANSMED students, credits of TMED-1 Personal Study Plan are integrated into this course.

Career seminar 4 h
Interview 2 h
Attendance to a dissertation 2 h
Learning café 2 h
Interactive sessions 14 hours
Independent work 58 h

Other information: Responsible teacher University lecturer Tiina Immonen. Other teachers coordinator Katri Wegelius, katri.wegelius@helsinki.fi and career counsellor Sanna Grannas (Career services sessions).

Study materials

EN: Materials are provided during the course.

Completion method and assessment items	Recurrence	Credits
Method 1		3 cr
Participation in teaching		3 cr

TMED-001 Personal Study Plan

TMED-001 Personal Study Plan

TMED-001 Personal Study Plan

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	0 cr
Languages	English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Tiina Immonen, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Compulsory prerequisites

MED-100 Confidentiality and information security commitment

Equivalences to other studies

TMED-1 Personal Study Plan

or

30269 Personal Study Plan

Learning outcomes

EN: Students learn how to find different study options and create a personal study plan. Students learn to use the services of the Terkko campus library and become aware of study support services. Students also become familiar with the ethical guidelines of the University of Helsinki.

Content

EN: Each student will create a personal study plan and receive individual study guidance from TRANSMED director. During the course, students will be introduced to e-Library resources and get information retrieval practice. The course includes also introduction to the plagiarism detection system URKUND. Study support and student feedback practices and systems are introduced.

Additional information

EN: Target group: TRANSMED students
Timing: Orientation week and period I, first study year.

Completion methods:

Lectures 9 h
Webinars 2 h
Individual study counselling 0,5 h
Completion of personal study plan 2 h

Activities and teaching methods in support of learning: Group discussions, SISU workshop, webinars and practicals.

Assessment practices and criteria: Completion of a feasible personal study plan is required. Grading Pass/Fail.

Relations to other study units: Credits are integrated in TMED-901 Career development.

Credit transfer instructions

EN: Cannot be credited with previous studies.

Completion method and assessment items	Recurrence	Credits
Method 1		0 cr
Participation in teaching		0 cr

TMED-991 Master's Thesis

TMED-991 Master's Thesis

TMED-991 Master's Thesis

Abbreviation: Master's Thesis

Curriculum periods	2024-25, 2025-26
Validity period	since 1 Aug 2024
Credits	30 cr
Languages	English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Lääketieteellinen tiedekunta, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Learning outcomes

EN: A Master's thesis consists of both research and written work completed as part of studies in the Master's Programme in Translational Medicine (TRANSMED). The aim is to train the student in independent research work, information retrieval skills, the critical assessment of sources and research results, and academic writing. An independently written Master's thesis demonstrates the student's ability to think scientifically and use the necessary research methods to properly treat the topic of the thesis by applying the knowledge and skills acquired in previous studies. The student also proves that he or she is adequately conversant with the thesis topic and expresses ability to scientific writing in the field of translational medicine.
Students in the study track Health Industry and Innovation are encouraged to do the thesis as a commission. Guidelines for commissioned theses are given in studies.helsinki.fi (https://studies.helsinki.fi/instructions/article/masters-thesiscommissions).

Additional information

EN: Target group: Students of the Master's Programme in Translational Medicine
Language: English

Grading: General scale 0-5.

Completion methods:
The scope of a Master's thesis is 30 ECTS-compatible credits, which corresponds to ca. 5 months of full-time work, including both research and written work. Students must complete a Master's thesis independently, not in pairs or groups. Each student is assigned a personal supervisor. The supervisor must hold at least a doctoral degree.

The written work is based on the work conducted by the student. The research can be part of a wider research project that aims to produce new scientific knowledge. The thesis should form a coherent entity with clear research question. Any materials, analyses etc. produced by others must be clearly indicated and acknowledged according to good scientific practice. Students must follow good laboratory practices, ethical

guidelines of animal handling and use of patient material as well as other laws and guidelines for scientific research so that the results they produce can later be published in a
scholarly article, for instance.

Master's theses are public documents. A digital copy of the thesis is stored and, pending on student's permission, published online in E-thesis, the digital repository of University of Helsinki. Theses for which no open publication permission has been granted can be read on designated computers of the Helsinki University Library.

The student is committed to working with the supervisor and completing the work within the agreed timetable. Responsibility for the progress of the work rests primarily with the student. The student must be provided with the opportunity to stop research, if the time limit set has elapsed and the acquired results are adequate for the writing of the Master's thesis. If for any reason the supervisor is unable to carry out his or her supervisory duties and this to a significant extent extends the agreed schedule, TRANSMED director must be informed.

Activities and teaching methods in support of learning

Before starting the thesis project, the supervisor(s) and the student must complete and sign a supervision agreement on an appropriate form. The supervisor and the student must agree on a clearly defined project including a tentative timetable, and the practices in supervision and guidance. The supervisor and his or her unit or research group must provide the student with the necessary material, tools, and equipment. The supervisor must allocate time for scientific supervision and provide feedback and advice on academic writing. The supervisor's duties do not include carrying out analyses or determinations on behalf of the student.

The supervision agreement must be accompanied by a research plan. The supervision agreement and research plan are approved by the TRANSMED director. The plan is expected to be completed during Period I of the 2nd study year, the latest. A copy of the approved Master's thesis plan is stored by the TRANSMED director.

Assessment and grading:

The responsible supervisor must propose two examiners. The examiners must hold a doctoral degree and at least one of the examiners must be a docent or a professor. The supervisor may not have any recent or ongoing collaboration with the examiners. The examination of the thesis is initiated when the student submits the thesis to the electronic evaluation platform and the proposal for examiners has been approved by the TRANSMED director. It is recommended that the examiners complete the evaluation within four weeks of having received the assignment. The examiners are expected to give a statement and an unequivocal proposal for a grade using the electronic evaluation platform. The statement should be written in English. The student is informed of the proposed grade. The dean will decide on the approval of the Master´s thesis and its grade.

If the examiners are unable to make an unequivocal proposal for a grade, the programme director will nominate a third examiner. If two of the three examiners agree upon the grade, that grade will become the grade proposal to be approved by the Dean. If all examiners disagree upon the grade, the average of all three proposed grades (rounded up to the nearest integer) will become the grade proposal to be approved by the Dean.

Grading scale: 0-5. The grade descriptions are described in a separate assessment matrix. The assessment matrix used in grading will change on 1.1.2025. The matrix to be used in assessment is determined by the date when the thesis is submitted for examination. See more information in

Studies.helsinki.fi (https://studies.helsinki.fi/instructions/article/thesis-and-maturity-test-masters-and-licentiates-programmes)

Student who is not satisfied with the grade proposal can request in writing the grading and approval to be suspended. The student needs to make the request about the suspension of the grading before the thesis and the proposed grade are to be approved by the Dean (by 12.00 on the preceding day the latest). The thesis will then not proceed for approval and grading, but the student may make additions and amendments to the thesis and submit the revised work as new.

As a rule, the#evised#thesis#will be assessed by the#examiners of the original submission.#If an original examiner is not available, the programme director will nominate a new examiner for the re-submission.

A student unsatisfied with the grade approved by the Dean can submit a request for administrative review of the master's thesis assessment to the Academic Appeals Board in the 14 days after receiving the assessment decision.

Credit transfer instructions

EN: Cannot be credited.

Completion method and assessment items	Recurrence	Credits
Method 1		30 cr
Independent study		30 cr

TMED-992 Advanced Research Methods

TMED-992 Advanced Research Methods

TMED-992 Advanced Research Methods

Abbreviation: Advanced Resear

Curriculum periods	2024-25, 2025-26
Validity period	since 1 Aug 2024
Credits	10 cr
Languages	English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Tiina Immonen, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Equivalences (free text field)

EN: The course can be credited with 30244 Work in Research Group and 30283 Advanced Research Methods.

Learning outcomes

EN: Mastering research methods relevant in the field of the student's chosen study track option or the Master's thesis topic.

Content

EN: Practical training in a research group in the field of the selected study track option to learn at least one specific method.

Additional information

EN: The traineeship subsidy from University of Helsinki can be applied, if the course is completed outside of UH.

Target group: Students of the Master's Programme in Translational Medicine

Timing: First study year

Completion methods:

260 h of practical training

Learning diary 10 h
Total 270 h

Activities and teaching methods in support of learning: Learning current research methods in an authentic environment in a research group under supervision and in connection with ongoing research. At the end of the period, student will receive a structured work-place assessment of his/her performance in the group from supervisor and other research group members. The student is also asked to give feedback from supervision.

Assessment practices and criteria: Acceptance is based on an accepted learning diary and a statement by the PI or other supervisor. Grading: Pass/fail

Responsible teacher: Tiina Immonen

Completion method and assessment items	Recurrence	Credits
Method 1		10 cr
Independent study		10 cr

TMED-995 Maturity Exam

TMED-995 Maturity Exam
TMED-995 Maturity Exam

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	0 cr
Languages	English, Finnish, Swedish
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Lääketieteellinen tiedekunta, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Equivalences to other studies

30247 Maturity Exam

Equivalences (free text field)

EN: Cannot be credited with previous studies.

Additional information

EN: Target group: TRANSMED students

Completion:
Maturity examination is taken in the form of thesis abstract, which is written in English. The abstract is assessed by
the Master's thesis examiners in connection with the grading of the thesis.

However, a student who has completed secondary education in Finnish or Swedish and has not completed a maturation
examination in the respective language in a first-cycle university degree, needs to write the thesis abstract also in this
language (studies.helsinki.fi). The thesis abstract written in Finnish or Swedish is assessed by an examiner nominated by
TRANSMED director when the examiners of the thesis are accepted.

Additional information: https://studies.helsinki.fi/instructions/article/language-proficiency-demonstrated-masters-degree

Completion method and assessment items	Recurrence	Credits
Method 1		0 cr
Independent study		0 cr

TMED-031 Traineeship 1

TMED-031 Traineeship 1

TMED-031 Traineeship 1

Curriculum periods	2024-25, 2025-26
Validity period	since 1 Aug 2024
Credits	5 cr
Languages	English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Tiina Immonen, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Equivalences to other studies

TMED-919 Internship

Equivalences (free text field)

EN: TMED-919 Internship if completed in a company or organisation, or in university in other tasks than academic research.
5 credits of TMED-992 Advanced Research Methods if completed outside of university.

Learning outcomes

EN: After the practical training period, the student

- has acquired practical experience in a research group or company
- has improved her/his ability to apply and assess her/his own knowledge and skills
- has improved her/his ability for independent work and reporting of results
- has enhanced her/his potential as a future jobseeker in a wider network within the field of study

Content

EN: Traineeship period can be with or without salary (although the latter is not recommended). Before the internship starts, the student must register to TMED-031 in Sisu indicating the supervisor(s) and the

planned time period of the practical training. The responsible teacher checks the suitability of the planned internship and verifies the registration.

Additional information

EN: Target group: Students of the Master's Programme in Translational Medicine, study track Health Industry and Innovations

Timing: Recommended to be completed during the first or second year, but before the Master's thesis.

Assessment: Grading pass / fail. This will be estimated according to the report and the statement given by the supervisor.

Completion: Before starting the practical training period, the student agrees with the trainee-site supervisor about the timing and project content and the learning goals. After the traineeship period, the student writes a report that summarises the experience gained. 1 month of full-time work corresponds 5 cr.

Additional information: The instructions for completing a university funded traineeship can be found in student.helsinki.fi
(https://studies.helsinki.fi/instructions/traineeships). For university funding, 10 cr traineeship is required (TMED-031 + TMED-032, both completed outside university). For university funded traineeship, follow instructions given on

https://studies.helsinki.fi/instructions/traineeships.

Responsible teacher: University lecturer Tiina Immonen

Completion method and assessment items	Recurrence	Credits
Method 1		5 cr
Independent study		5 cr

TMED-032 Traineeship 2

TMED-032 Traineeship 2

TMED-032 Traineeship 2

Curriculum periods	2024-25, 2025-26
Validity period	since 1 Aug 2024
Credits	5 cr
Languages	English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Tiina Immonen, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Equivalences to other studies

TMED-919 Internship

or

TMED-992 Advanced Research Methods

Equivalences (free text field)

EN: 5 credits of TMED-992 Advanced Research Methods can be used for crediting Traineeship 2 + and 5 credits of TMED-919 /TMED-924 Internship in study track Health Industry and Innovations of the 23-26 curriculum

Learning outcomes

EN: After the practical training period, the student

- has acquired practical experience in a research group or company
- has improved her/his ability to apply and assess her/his own knowledge and skills
- has improved her/his ability for independent work and reporting of results
- has enhanced her/his potential as a future jobseeker in a wider network within the field of study

Content

EN: Internship period can be with or without salary (although the latter is not recommended). Before the internship starts, the student must submit a plan indicating the placement, supervisor(s) and the planned time period of the practical training. The responsible teacher approves the plan.

Additional information

EN: Target group: Students of the Master's Programme in Translational Medicine, study track Health Industry and Innovations

Timing: Recommended to be completed during the first or second year, but before the Master's thesis.

Assessment: Grading pass / fail. This will be estimated according to the report and the statement given by the traineeship supervisor.

Completion: Before starting the practical training period, the student agrees with the trainee-site supervisor about the timing and project content and the learning goals. After the traineeship period, the student writes a report that summarises the experience gained. 1 month of full-time work corresponds 5 cr.

Additional information: The instructions for completing a university funded traineeship can be found in student.helsinki.fi
(https://studies.helsinki.fi/instructions/traineeships). For university funding, 10 cr traineeship is required (TMED-031 + TMED-032, both completed outside university). For university funded traineeship, follow instructions given on
https://studies.helsinki.fi/instructions/traineeships.

Responsible teacher: University lecturer Tiina Immonen

Completion method and assessment items	Recurrence	Credits
Method 1		5 cr
Independent study		5 cr

TMED-919 Internship

TMED-919 Internship

TMED-919 Internship

Abbreviation: Internship

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	5 cr
Languages	English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Tiina Immonen, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Equivalences to other studies

30244 Work in Research Group

or

TMED-992 Advanced Research Methods

Learning outcomes

EN: The student acquires experience in a research group or in a company of the working environment, arrangements and practices in the hosting unit, the content of the work, and the aims and values of the working community.

Content

EN: The internship period should be completed through working on a full-time basis either in a research group or in a company.

Additional information

EN: Target group
Students of the Master’s Programme in Translational Medicine

Timing

The timing is free.

Completion methods

Working on a full-time basis either in a research group or in a company.

Assessment practices and criteria

Completion is based on a statement by the PI or superior in the company. In the statement the duration of the training period should be defined. Five credits equals 135 h of work.

Grading: Pass/fail

Credit transfer instructions

EN: The course can be credited through acknowledgement of translational medicine–related work experience, not older than five years, of a minimum of 135 hours.

Completion method and assessment items	Recurrence	Credits
Method 1		5 cr
Independent study		5 cr

TMED-924 Internship Abroad

TMED-924 Internship Abroad

TMED-924 Internship Abroad

Abbreviation: Internship Abro

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	1-5 cr
Languages	English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Tiina Immonen, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Learning outcomes

EN: The student acquires experience in a research group or in a company of the working environment, arrangements and practices in the hosting unit, the content of the work, and the aims and values of the working community.

Content

EN: The internship period should be completed through working on a full-time basis either in a research group or in
a company.

Additional information

EN: Target group
Students of the Master’s Programme in Translational Medicine

Completion methods

Completion is based on a statement by the PI or superior in the company. In the statement the duration of the training period should be defined. Five credits equals 135 h of work.

Assessment practices and criteria

Grading: Pass/fail

The course can be credited through acknowledgement of translational medicine–related work experience, not older than five years, of a minimum of 135 hours.

Completion method and assessment items	Recurrence	Credits
Method 1		1 cr

Independent study (min)	1 cr
Method 2	5 cr
Independent study (max)	5 cr

MED-90 Tutoring

MED-90 Tutorointi

MED-90 Tutorering

Curriculum periods	2020-21, 2021-22, 2022-23, 2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2020
Credits	5 cr
Languages	English, Finnish, Swedish
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Faculty of Medicine 100%
Responsible person	Lääketieteellinen tiedekunta, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

MED-92 Medical Humanities

MED-92 Medical Humanities

MED-92 Medical Humanities

Abbreviation: Medical Humanit

Curriculum period	2025-26
Validity period	since 1 Aug 2025
Credits	1-2 cr
Languages	Finnish, Swedish
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Faculty of Medicine 100%
Responsible person	Lena Sjöberg, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Completion method and assessment items	Recurrence	Credits
Method 1		1 cr
Participation in teaching (min)		1 cr
Method 2		2 cr
Participation in teaching (max)		2 cr
Method 3		1 cr
Exam (min)		1 cr
Method 4		2 cr
Exam (max)		2 cr
Method 5		1 cr

Independent study (min)	1 cr
Method 6	2 cr
Independent study (max)	2 cr

MED-94 Participation in administrative bodies and student organisations

MED-94 Hallinto- ja opiskelijajärjestötoiminta

MED-94 Uppdrag i universitetets förvaltningsorgan och studentorganisationer

Abbreviation: Opiskelijajärje

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	1-5 cr
Languages	Finnish
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Faculty of Medicine 100%
Responsible person	⚠ [information missing], Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Completion method and assessment items Recurrence	Credits
Method 1	1 cr
Participation in teaching (min)	1 cr
Method 2	5 cr
Participation in teaching (max)	5 cr
Method 3	1 cr
Exam (min)	1 cr
Method 4	5 cr
Exam (max)	5 cr
Method 5	1 cr
Independent study (min)	1 cr
Method 6	5 cr
Independent study (max)	5 cr

SUST-001 Sustainability course

SUST-001 Kestävyyskurssi

SUST-001 Hållbarhetskurs

Abbreviation: SUST-001

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	3 cr
Languages	English, Finnish, Swedish
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Faculty of Educational Sciences 100%

Responsible person	Rami Ratvio, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Social sciences

Equivalences to other studies

SUST-001B Sustainability course

Equivalences (free text field)

EN: Sustainability Courses (3 cr) that begin with the code SUST-001, have equivalent learning outcomes and are offered by a degree programme or facultySUST-001B, Sustainability Course, 3 cr. Courses with the code SUST-001B were offered in the spring term 2022.

Learning outcomes

EN: After completing the course, students will
1. Be acquainted with the complexity and multidisciplinary nature of sustainability issues, and the ethical and philosophical dimensions of sustainability

2. Understand sustainability challenges related to the course themes, related changes, underlying processes and phenomena, and potential solutions. Students will be acquainted with six themes, of which they will have explored one theme in depth. The themes are: a) Global environmental commons, b) Human wellbeing and capabilities, c) Sustainable and just economies, d) Sustainable food systems and healthy nutrition, e) Climate change and just energy transitions, and f) Urban and peri-urban development.

3. Have reflected on their role as specialists, actors and members of society in the solving of sustainability issues and have acquired tools for solutions

4. Be able to address sustainability issues constructively and understand other people's perspectives

5. Be able to apply knowledge and skills related to sustainability as a specialist in their field

Content

EN: The Sustainability Course consists of modules. The first two modules are compulsory for all students taking the course.
Module 1: INTRODUCTION: Sustainability as a concept, the complexity of sustainability issues and a systemic approach

Module 2: SOLUTIONS: Solutions to sustainability issues: the role of students in solving sustainability issues as future specialists, actors and members of society

Students will explore all of the thematic modules A–F in brief and will select one of them for further study. The thematic modules examine sustainability challenges associated with the theme, observations of ongoing changes, processes or phenomena underlying the changes, and solutions to these sustainability challenges.

The thematic modules are:

A: Global environmental commons
B: Human wellbeing and capabilities
C: Sustainable and just economies
D: Sustainable food systems and healthy nutrition
E: Climate change and just energy transitions
F: Urban and peri-urban development

During the course, students complete a final assignment based on a solution to a sustainability challenge.

Additional information

EN: Methods of completion
Students complete the course by completing the compulsory module assignments and the final assignment.

Assessment practices and criteria

A passing grade requires completing the module assignments and final assignment acceptably.

Activities and methods in support of learning

The course modules consist of set reading, videos, and assignments and activities in support of learning.

Target groups

The course is compulsory or optional to University of Helsinki degree students, depending on the curriculum of their degree programme. The course is part of the University's continuous learning provision and is also offered to exchange students and other visiting students.

Teaching period when the course will be offered

The course will be organised in the autumn and spring terms.

Recommended time or stage of studies for completion

It is recommended that students complete the course when they have completed basic studies in their own field of study.

Expiry of studies

In accordance with University guidelines

Languages of instruction

Finnish, Swedish, English

EQF-level

First-cycle (bachelor's) degree / EQF level 6

Study materials

EN: The course modules consist of digital teaching material available on the course-specific online area.

Completion method and assessment items	Recurrence	Credits
Method 1		3 cr
Participation in teaching		3 cr
Method 2		3 cr
Independent study		3 cr
Method 3		3 cr
Participation in teaching		3 cr
Method 4		3 cr
OU: Participation in teaching		3 cr
Method 5		3 cr
Participation in teaching		3 cr

SUST-002-PHARM Sustainable Health

SUST-002-PHARM Kestävä terveys

SUST-002-PHARM Hållbar hälsa

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	2 cr
Languages	English, Finnish
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Faculty of Pharmacy 100%
Responsible person	Ilkka Miettinen, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

EN: An attending student benefits from a rudimentary understanding on key sustainability concepts, and the prior completion of the *Sustainability course* (*SUST-001*B) is strongly recommended. To benefit most out of the course, an attending student should have a general proficiency in their discipline, equivalent to advanced B. Sc. level studies.

Recommended prerequisites

SUST-001B Sustainability course

Learning outcomes

EN: After completing the course, the participants will

- have identified, activated, and deepened their earlier knowledge on sustainability themes
- have acquired new perspective on how sustainability challenges and solutions manifest in their field
- recognize future competence needs regarding the sustainability challenges
- have acquired means of communicating their sustainability competences
- have brushed up their digital communication skills

Content

EN: The course discusses sustainable development themes in the context of healthcare and life sciences. The one health perspective, i.e. the interconnection of human, animal, and environmental health, is emphasized. The course materials and assignments are built on the 17 Sustainable Development Goals outlined in the United Nations Agenda 2030 action plan.

Additional information

EN: Completion
The course is completed by self-guided e-learning on the Moodle platform, including the studying of the learning materials and information seeking (~18 h), the construction of an e-portfolio (~30 h) and peer-assessment (~5 h).

Assessment practices and criteria

The students will exchange peer-feedback on the portfolios during the course and carry out peer-assessment consisting of free-form verbal feedback and pass/incomplete grading according to pre-set criteria at completion. Course teachers will supervise and support the assessment.

Passing criteria for the portfolio:

- Sufficient scope (minimum number of topics covered)

- Sufficient depth (minimum amount of substantial discussion per topic, minimum portfolio length)

Activities and methods in support of learning

The course consists of self-directed learning on the Moodle platform, including short reading assignments and video lectures, as well as the construction of an e-portfolio showcasing the student's learning process and sustainability competences. The portfolio work helps the student identify and deepen their discipline-specific sustainability competences by content creation, analysis, and reflection. Short introductory tasks (e.g. writing assignments, case introductions, personal input) regarding the Sustainable Development Goals will guide the portfolio building process.

Peer-feedback on the portfolios is exchanged along the course, enabling the students to get inspired from the viewpoints of others and acquire formative feedback for developing their portfolios further. The course teachers are available for support during the course completion and evaluation phases.

Target groups

The course is optional for the students in the Master's Programme in Pharmaceutical Research, Development and Safety and the Bachelor's and Master's Programmes in Pharmacy and available to other related programmes.

Teaching period when the course will be offered

The course is organised 1-2 times per academic year (autumn/spring).

Recommended time or stage of studies for completion

To benefit most out of the course, an attending student should have a general proficiency in their discipline, equivalent to advanced B. Sc. level studies.

Language of instruction

EN/FI

EQF level

Master's / EQF level 7

Additional information

The course is part of Sustainability Studies Network. The maximum number of students accepted through the network is 15. Network students will be selected in the order of registration.

Study materials

EN: All the necessary materials (e.g., introductory texts, scientific publications, case reports and video lectures) are available on the online course platform, and students are encouraged to use external materials based on their field and interests.

Completion method and assessment items	Recurrence	Credits
Method 1		2 cr
Participation in teaching		2 cr
Method 2		2 cr
Participation in teaching		2 cr
Method 3		2 cr
Participation in teaching		2 cr

TMED-923 Studies in Foreign University

TMED-923 Studies in Foreign University

TMED-923 Studies in Foreign University

Abbreviation: Foreign Studies

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	1-25 cr
Languages	English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Tiina Immonen, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Additional information

EN: Target group
Students in Master's Programme in Translational Medicine.

Toteutus

Formal Master's level education completed in foreign university.

Assessment practices and criteria

If courses to be credited have been graded on scale 1-5 where 5 is the highest mark, this can be used in crediting. If several courses are included, mark is a weighed average of the marks 1-5.

If the courses to be credited have been evaluated in any other scale, grading is pass-fail.

Additional information

The language will be registered according the language of the credited studies.

Completion method and assessment items	Recurrence	Credits
Method 1		1 cr
Independent study (min)		1 cr
Method 2		25 cr
Independent study (max)		25 cr

TMED-931 Studies in Other Finnish Universities

TMED-931 Studies in Other Finnish Universities

TMED-931 Studies in Other Finnish Universities

Abbreviation: Finnish Uni

Curriculum periods	2023-24, 2024-25, 2025-26

Validity period	since 1 Aug 2023
Credits	1-25 cr
Languages	English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Tiina Immonen, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Additional information

EN: Target group
Students in Master's Programme in Translational Medicine.

Completion methods

Formal Master's level education completed in another Finnish university.

Additional information

All Finnish universities are parties to the Flexible Study Rights Agreement (JOO), which provides graduate students of Finnish universities the opportunity to incorporate courses from other universities into their degrees. Flexible studies are free of charge for students.

The applications of TRANSMED students to conduct studies in other Finnish universities can be supported by the Faculty of Medicine provided that the University of Helsinki offers no similar studies and that the studies will be incorporated in the Master of Science in Translational Medicine degree. The Faculty of Medicine can endorse applications for not more than the maximum scope of optional studies in the degree, through a recommendation from the TRANSMED coordinator. The receiving university will decide whether to accept the application. The application can be submitted electronically (www.joopas.fi) at any time during the academic year.

TRANSMED, together with the Master's Programme in Neuroscience, has a study collaboration agreement with Aalto University. The collaborating programmes in Aalto University are the Master's Degree Programme in Life Science Technologies (major Biomedical Engineering and major Human Neuroscience and Technology) and Doctoral Programme in Science. This agreement allows students to apply study rights of maximum of two years to the participating programmes in another university and to participate in courses, if agreed by the responsible teachers, without costs to either student or his/her university.

Assessment practices and criteria

If courses to be credited have been graded on scale 1-5 where 5 is the highest mark, this can be used in crediting. If several courses are included, mark is a weighed average of the marks 1-5. If the courses to be credited have been evaluated in any other scale, grading is pass-fail.

Other information

The language will be registered according to the language of the credited studies. More information in studies.fi.

Completion method and assessment items	Recurrence	Credits
Method 1		1 cr
Participation in teaching (min)		1 cr
Method 2		25 cr
Participation in teaching (max)		25 cr
Method 3		1 cr
Exam (min)		1 cr

Method 4	25 cr
Exam (max)	25 cr
Method 5	1 cr
Independent study (min)	1 cr
Method 6	25 cr
Independent study (max)	25 cr

DIGI-A Student's digital skills: orientation

DIGI-A Opiskelijan digitaidot: orientaatio

DIGI-A Studentens digitalkompetens: orientering

Abbreviation: DIGI A

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	1 Aug 2023-31 Jul 2026
Credits	2 cr
Languages	English, Finnish, Swedish
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Teaching and Learning Services 100%
Responsible persons	Reko Castren, Administrative person Nina Dementjeff, Administrative person Jaakko Kurhila, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Information and Communication Technologies (ICTs)

Equivalences (free text field)

EN: The Student's digital skills: orientation -course can only be substituted with corresponding studies completed at the University of Helsinki or the Open University (e.g. the ICT Driving Licence, or Student's digital skills (DIGI-000A, DIGI-100A, DIGI-200A, DIGI-300A, DIGI-400A, AYDIGI-500A)).

Learning outcomes

EN: Introduction to the use of computers: The student can use a computer and its peripheral devices and can manage the use of files and directories. In addition, he/she can handle common IT problems, knows the basics of using the Internet and is familiar with the “netiquette”, or online etiquette.
The computer environment at the University of Helsinki: The student can use the University of Helsinki’s computer environment and its services independently. He/she also knows which online study services provided by the University of Helsinki he/she can use to aid his/her studies.

Information seeking: The student can use the University of Helsinki’s library services and find information through various sources. He/she knows different search techniques which help to work more efficiently. The student will also be familiar with the basics of copyrights.

Information security and privacy protection: The student understands the significance of information security and privacy protection in studies and other activities. He/she also knows how the choices he/she makes affect his/her own information security.

Additional information

EN:

Target group

The course is part of the general studies and is obligatory for all students pursuing a bachelor’s degree. The course can also be a part of continuous learning course selection.

Timing

The course must be completed as soon as possible after the beginning of studies, during the orientation period or period I – at the latest, during period II.
Organised annually in periods I-IV. If the course is offered as a continuous learning course, it may be taught at a different time.

Completion methods

The course is based on self-study materials that can be found online. The student demonstrates the knowledge and skills required for passing the course in an online competence test.

Contents

On this course, the student learns more about the digital learning environment of the University of Helsinki, information security and issues related to privacy protection. In addition, the student learns the basics of the use of computers and information seeking.

Assessment practices and criteria

This is a Pass/Fail course. To pass the course, you need to score at least 70% of the test's maximum points.

Activities and methods in support of learning

The self-study materials and the entry-level tests.

Relations to other study units

Partial performance for the course DIGI, Student's digital skills (3 sp). In addition, the following course should be taken: DIGI-B, Student's digital skills: advanced skills (1 sp).

Study materials

EN: The self-study materials for the competence test of the course (chapters Introduction to the use of computers, The computer environment at the University of Helsinki, Information seeking, Information security): http://blogs.helsinki.fi/students-digital-skills/

Credit transfer instructions

EN: The Student's digital skills: orientation -course or its parts can only be substituted with corresponding studies completed at the University of Helsinki or the Open University (e.g. the ICT Driving Licence, or Student's digital skills (**DIGI-000A, DIGI-100A, DIGI-200A, DIGI-300A, DIGI-400A, AYDIGI-500A**)).

Completion method and assessment items	Recurrence	Credits
Method 1		2 cr
Online course for self-study		2 cr
Method 2		2 cr
Participation in teaching		2 cr
Method 3		2 cr
OU: Participation in teaching		2 cr
Method 4		2 cr
Online course for self-study		2 cr

DIGI-B Student's digital skills: advanced skills

DIGI-B Opiskelijan digitaidot: syventävät taidot

DIGI-B Studentens digitalkompetens: fördjupade studier

Abbreviation: DIGI B

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	1 cr
Languages	English, Finnish, Swedish
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Teaching and Learning Services 100%
Responsible persons	Jaakko Kurhila, Responsible teacher Reko Castren, Administrative person Nina Dementjeff, Administrative person
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Information and Communication Technologies (ICTs)

Prerequisites

EN: Obligatory preceding course: DIGI-A Student’s digital skills: orientation (2 sp) or an equivalent course (DIGI-000A, DIGI-100A, DIGI-200A, DIGI-300A, DIGI-400A, AYDIGI-500A).

Compulsory prerequisites

DIGI-A Student's digital skills: orientation

Equivalences to other studies

DIGI-300M Studentens digitalkompetens: fördjupade studier - medicin

Equivalences (free text field)

EN: The Student's digital skills: advanced-course can only be substituted with corresponding studies completed at the University of Helsinki or the Open University (e.g. the ICT Driving Licence, or Student's digital skills (DIGI-000B, DIGI-100B, DIGI-200B, DIGI-300C, DIGI-400B, AYDIGI-500B)).
Also note that if you already have completed any of the courses mentioned above you cannot take DIGI-B -course unless, the course was taken more than 10 years ago and cannot be used as part of your degree.

Learning outcomes

EN: The student knows the basic use of word processing, spreadsheets, creating slide shows and videos and knows how to choose the right tool for each task. In addition the student knows how to transfer data between different programs.

Additional information

EN:

Target group

The course is part of the general studies and is obligatory for all students pursuing a bachelor’s degree.

The following degree programmes offer their own course in place of DIGI–B Student’s Digital Skills: Advanced Skills (1 cr)

- Bachelor's Programme in Mathematical Sciences: TKT500031 Computing Tools for CS Studies or MAT20016 Latex Course
- Bachelor's Programme in Physical Sciences: MAT20016 Latex Course
- Bachelor's Programme in Chemistry: KEK405 Chemist’s Digital Skills

- Bachelor's Programme for Teachers of Mathematics, Physics and Chemistry: MFK-418 Subject Teacher's Digital Tools I
- Bachelor's Programme in Computer Science: TKT500031 Computing Tools for CS Studies
- Bachelor of Science: Chemistry, mathematics and statistics and physics study tracks: MAT20016; Computer and data science study track: TKT500031
- Medicine and dentistry: DIGI-300M Student's Digital Skills: Advanced Skills – Medicine (Meilahti), 1 cr

Timing

The course will be taken after the completion of the course DIGI-A Student's digital skills: orientation (2 sp). It is recommended that the course be completed by the end of the first year of studies.

Organised annually in periods I-IV. If the course is offered as a continuous learning course, it may be taught at a different time.

Completion methods

The course is based on self-study materials that can be found online. The student demonstrates the knowledge and skills required for passing the course in a competence test.

Contents

On this course, the student learns the basics of modifying and presenting data.

Activities and methods in support of learning

The self-study materials and the entry-level tests.

Assessment practices and criteria

This is a Pass/Fail course. To pass the course, you need to score at least 70% of the test's maximum points.

Relations to other study units

The course is the second part of the course DIGI, Student's digital skills (3 sp). In addition, the following course should be taken: DIGI-A Student's digital skills: orientation (2 sp).

Study materials

EN: The self-study materials for the competence test of the course (Advanced skills, 1 sp): http://blogs.helsinki.fi/students-digital-skills/advanced-studies-presenting-data/

Completion method and assessment items	Recurrence	Credits
Method 1		1 cr
Online course for self-study		1 cr
Method 2		1 cr
Participation in teaching		1 cr
Method 3		1 cr
OU: Participation in teaching		1 cr
Method 4		1 cr

Online course for self-study 1 cr

TMED-994 Translational Medicine Thesis Seminar

TMED-994 Translational Medicine Thesis Seminar
TMED-994 Translational Medicine Thesis Seminar

Abbreviation: Translational M

Curriculum periods	2024-25, 2025-26
Validity period	since 1 Aug 2024
Credits	2 cr
Languages	English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Tiina Immonen, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Equivalences to other studies

30288 Master's Thesis Seminars

Learning outcomes

EN: Student learns to prepare and present a scientific presentation, and to discuss the findings and limitations of the project. First year students get insight to the variety of research questions, methodological approaches and research groups in the field of translational medicine.

Additional information

EN: Target group
Students of the Master's Programme in Translational Medicine

Timing

1st and 2nd study year. Seminars are arranged one-two times in a month from September to May.

Completion methods

TMED-994 Translational Medicine thesis seminars, part 1 (1 cr): Student attends 5 seminars before having an own presentation, and submits an acceptable research plan and supervision agreement.

TMED-994: Translational Medicine thesis seminars, part 2 (1 cr): The student presents the plan and the results of the thesis project in two separate seminars, and acts as an opponent.

The presentation of the thesis plan is given after the research plan has been accepted. The student should present the topic and rationale of the plan as well as an overview of methods. The student has to provide an abstract of the presentation for the audience to read before the seminar. The presentation on thesis results is given after the project has been completed, and the presentation should cover the methods, results and discussion of the project. The supervisor of the thesis is welcome to attend and take part in conversation. All students should actively take part in discussion. Each student acts once as an opponent to a thesis result presentation.

Realisation:

Seminars 16 h
Preparation of presentations 30 h

Preparation to act as an opponent 3 h
Abstract writing 5 h
Total 54 h

Activities and teaching methods in support of learning

Constructive feedback on the research plan before the seminar, scientific discussion in the seminars, and constructive feedback on scientific content and presentation from the opponents and audience. Writing the abstracts gives important practice for thesis abstract writing.

Evaluation: Grading pass-fail.
Responsible teacher: University lecturer Tiina Immonen

Study materials

EN: Presentation abstracts.

Completion method and assessment items	Recurrence	Credits
Method 1		2 cr
Attendance and thesis plan		1 cr
Presentations and acting as opponent		1 cr

TMED-993 Clinical Rounds

TMED-993 Clinical Rounds

TMED-993 Clinical Rounds

Abbreviation: Clinical Rounds

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	3 cr
Languages	English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Tiina Immonen, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Prerequisites

EN: Participation may require from the student vaccinations (including Covid-19) or other provisions set by law or by HUS for health care workers to ensure patient safety. The course can be substituted by TMED-993X Clinical Cases, which does not involve visits to University Hospital and therefore can be completed irrespective of patient safety regulations or requirements.

TMED-909 Human Anatomy and Physiology
TMED-907 Laboratory Medicine and Molecular Diagnostics
A minimum of 5 cr of courses of the Mechanisms of Human Disease.

Equivalences to other studies

30474 Clinical Rounds

or

TMED-993X Clinical Cases

Learning outcomes

EN: The student deep-study characteristic or exemplary patient histories including therapeutic strategies and outcomes to be able to analyse the possible causes of disease and the therapeutic outcomes. The student will also get insight to the roles and responsibilities of the members in the interprofessional teams of HUCH clinics.

Content

EN: Bed-side learning with clinicians of patient histories with related background reading; lectures, meetings or seminars in the respective clinics. The placements are based on the chosen study track and Master's thesis topic.

Additional information

EN: Target group
Students of the Master's Programme in Translational Medicine. Students apply the placements either for autumn or spring term from the Helsinki University Hospital.

Timing

All periods, 2nd study year. The course is arranged annually.

Completion methods

Completion requires active participation to the introductory lecture and patient case seminars, writing a learning diary of the clinical rounds; completion of an on-line exam and giving a presentation of a selected patient case.
Bedside learning, clinic seminars, ward rounds 30h
Lectures 2h
Seminars 2h
Learning diary 10 h
Own presentation 16 h
Self-study 20 h
Exam 1 h

Activities and teaching methods in support of learning

Student reflects the clinical experiences in a learning diary, prepares a patient case presentation and discusses the case in a seminar. In the seminars, the experiences of students are discussed along with their patient cases. Students get also feedback from their clinical mentors

Assessment practices and criteria

Grades 0-5. The final grade is based learning diary (30%), patient case presentation (40%) and a statement by the clinical mentor (30%). Students also need to pass an on-line exam on data protection guidelines.

Responsible person

University lecturer Tiina Immonen

Study materials

EN: Materials provided on the course.

Completion method and assessment items	Recurrence	Credits
Method 1		3 cr
Participation in teaching		3 cr

TMED-993X Clinical Cases

TMED-993X Clinical Cases

TMED-993X Clinical Cases

Curriculum periods	2022-23, 2023-24, 2024-25, 2025-26
Validity period	1 Aug 2022-31 Jul 2026
Credits	3 cr
Languages	English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Tiina Immonen, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Prerequisites

EN: TMED-909 Human Anatomy and Physiology
TMED-907 Laboratory Medicine and Molecular Diagnostics
A minimum of 5 cr of courses of the Mechanisms of Human Disease.

Equivalences to other studies

TMED-993 Clinical Rounds

Learning outcomes

EN: Students learn about true clinical cases, diagnostics for a selected disease, the biomedical background and expected efficiency of available treatments and possible ongoing developments in the field. Students also learn about the protection of personal data in clinical work and research.

Additional information

EN: Target group
Students of the Master's Programme in Translational Medicine

Timing: All periods, 2nd study year. The course is arranged annually.

Completion methods:

The student analyses a selected published patient case and relevant literature including therapeutic strategies and outcomes of the disease and gives a presentation in the Clinical Rounds seminar. Student also writes an essay on a selected disease describing the aetiology, current diagnostics and treatment strategies and the biomedical background for these. Completion requires active participation to the introductory lecture and a patient case seminar, completion of an on-line exam on protection on personal data, and a presentation of a selected published clinical case study.

Lectures 2h
Seminars 2h
Preparation of presentation 16 h
Written assignment 10 h
Self-study 50 h
Exam 1 h

Activities and teaching methods in support of learning: Student discusses the clinical case in a clinical rounds seminar, and gets individual feedback on the written assignment.

Assessment practices and criteria:

Grades 0-5. The final grade is based on a clinical case presentation (50%) and the essay (50%) on selected disease based on recent advances in research. Student also need to pass the on-line exam on data protection guidelines.

Responsible teacher: University lecturer Tiina Immonen

Additional information: Alternative for TMED-993X Clinical Rounds; also applicable if student cannot enter TMED-993 Clinical Rounds due to requirements on health or vaccination status.

Study materials

EN: Materials provided on the course.

Credit transfer instructions

EN: Cannot be credited with previous studies.

Completion method and assessment items	Recurrence	Credits
Method 1		3 cr
Participation in teaching		3 cr

TMED-103 Cancer from Biology to Research

TMED-103 Cancer from Biology to Research

TMED-103 Cancer from Biology to Research

Abbreviation: Cancer from Bio

Curriculum periods	2024-25, 2025-26
Validity period	since 1 Aug 2024
Credits	5 cr
Languages	English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible persons	Päivi Ojala, Responsible teacher Pirjo Laakkonen, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Prerequisites

EN: TMED-902 and -903 Human Anatomy and Physiology I-II is required from TRANSMED students
TMED-105 Pathologic Basis of Disease is recommended for TRANSMED students

Equivalences to other studies

30387 Cancer Biology

Learning outcomes

EN: The student will
-Acquire basic knowledge on the principles of neoplastic growth, cancer progression and dissemination
- Acquire basic understanding on the interplay between different cell types during neoplastic growth
-Acquire knowledge on major research methodologies and disease models in cancer biology

Content

EN: Lectures provide an overview of the following aspects in cancer biology:

1. What cancer is
2. Oncogenes and tumour suppressor genes
3. The tumour microenvironment
4. Cancer metastasis
5. Angiogenesis and lymphangiogenesis
6. Cancer stem cells
7. Cancer and the immune system
8. Tumour viruses
9. Cancer metabolism
10. Cancer genetics and genomics
11. Targeted therapies
12. Basic methods in cancer research

Additional information

EN: Target group
Students of the Master's Programme in Translational Medicine; students of other Master's programmes and doctoral programmes. Attendance limited to 30 students.

Timing

Period III, second study year. The course is arranged annually.

Completion methods: participation in teaching

Attendance to all lectures is highly encouraged due to the diversity of the subject areas in the field of cancer biology. Attendance to group activity sessions and the feedback session is obligatory. Completion requires attendance to the group activity sessions and the feedback session, completion of possible course assignments and a passing grade on the exam.

Activities and teaching methods in support of learning:

Active discussion during interactive lectures

Assessment practices and criteria

Grading scale 0–5. The grading is based on the exam.

Responsible teachers

prof. Päivi Ojala and prof. Pirjo Laakkonen.

Study materials

EN: Research articles
Hanahan and Weinberg: The Hallmarks of Cancer, Cell, 100(1):57–70, 2000
Hanahan and Weinberg: Hallmarks of Cancer: The Next Generation. Cell. 144(5):646-74, 2011
Hanahan: Hallmarks of Cancer: New Dimensions. Cancer Discovery 12(1):31-46, 2022
Textbook: Weinberg, RA: The Biology of Cancer, 2023

Completion method and assessment items	Recurrence	Credits
Method 1		5 cr
Participation in teaching		5 cr

TMED-105A Pathologic Basis of Disease A

TMED-105A Pathologic Basis of Disease A

TMED-105A Pathologic Basis of Disease A

Abbreviation: Pathol Basis A

Curriculum period 2025-26

Validity period	since 1 Aug 2025
Credits	3 cr
Languages	English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Sanna Lehtonen, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Prerequisites

EN: TMED-909 Human Anatomy and Physiology or similar

Equivalences to other studies

30472 Pathologic basis of disease

Learning outcomes

EN: After the course, the student will understand the general mechanisms underlying and leading to human disease and will understand and be able to describe general features and relevant molecular mechanisms of the most important organ pathologies.

Content

EN: Lectures will cover the general pathophysiological mechanisms of disease (general pathology) and the diagnostically and therapeutically relevant features of several important diseases (“organ pathology”). During theme days, the students will become familiar with the basic diagnostic methods of anatomic and molecular pathology through case studies. The theme days include demos and an excursion to the pathology laboratory of HUSLAB that provides pathology services for Helsinki University Hospital.

Additional information

EN: Target group
Students of the Master’s Degree Programme in Translational Medicine. The course has limited attendance.

Timing

Period II

Completion methods: participation in teaching

Lectures and theme days. The theme days include demos and an excursion to the pathology laboratory of HUSLAB that
provides pathology services for Helsinki University Hospital.

Lectures 16 h
Visits/demos (obligatory): 6 h
Self-study 47 h
Exam: 2 h

Activities and teaching methods in support of learning

The course combines self-study, lecture-based teaching and practical case studies to enhance learning and the collecting of knowledge, aiming for a greater understanding of the key concepts and principles of the pathophysiological mechanisms of disease.

Teachers communicate with each other when preparing for the course and during the teaching, and collect feedback from each other and from the students.

Assessment practices and criteria

Completion requires participation in the lectures and other course activities (participation in the visits/demos is obligatory) and a passing grade on the exam, which will be based on lectures and the self-study material.
Grading scale 0–5. Grading is based on the exam.

Responsible person

Professor Sanna Lehtonen, sanna.h.lehtonen@helsinki.fi

Additional information

Study materials

EN: Lecture materials and eBook: Robbins, Basic Pathology (selected parts)

Completion method and assessment items	Recurrence	Credits
Method 1		3 cr
Participation in teaching		3 cr

TMED-105B Pathologic Basis of Disease B

TMED-105B Pathologic Basis of Disease B
TMED-105B Pathologic Basis of Disease B

Abbreviation: Pathol Basis B

Curriculum period	2025-26
Validity period	since 1 Aug 2025
Credits	1 cr
Languages	English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Sanna Lehtonen, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Learning outcomes

EN: After the course, the student will understand the general mechanisms underlying and leading to human disease and will understand and be able to describe general features and relevant molecular mechanisms of the most important organ pathologies.

Content

EN: Lectures will cover the general pathophysiological mechanisms of disease (general pathology) and the diagnostically and therapeutically relevant features of several important diseases (“organ pathology”)

Additional information

EN: Target group
Doctoral students

Timing

Period II

Completion methods: participation in teaching

Lectures, independent study and learning diaries.

Lectures 16 h
Self-study 11 h
Learning diaries

Activities and teaching methods in support of learning

The course combines self-study, lecture-based teaching and practical case studies to enhance learning and the collecting of knowledge, aiming for a greater understanding of the key concepts and principles of the pathophysiological mechanisms of disease. The learning diary deepens the understanding of the contents of the lectures and helps the student to gain competence in verbally communicating the gained knowledge.
Teachers communicate with each other when preparing for the course and during the teaching, and collect feedback from each other and from the students.

Assessment practices and criteria

Completion requires participation in the lectures and writing a learning diary of all the lectures.

Pass/fail. Grading is based on the learning diaries.

Responsible teacher: professor Sanna Lehtonen

Additional information

Study materials

EN: Lecture materials.

Completion method and assessment items	Recurrence	Credits
Method 1		1 cr
Participation in teaching		1 cr

TMED-205 Environmental Epigenetics Across Human Life Course

TMED-205 Environmental Epigenetics Across Human Life Course
TMED-205 Environmental Epigenetics Across Human Life Course

Curriculum period	2025-26
Validity period	since 1 Aug 2025
Credits	5 cr
Languages	English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible persons	Nina Kaminen-Ahola, Responsible teacher Miina Ollikainen, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Prerequisites

EN: The student should have the basic knowledge of genetics and epigenetics.

Learning outcomes

EN: After this course the student will
· know the basics of embryonic development

· understand the role of environment in epigenetic regulation of gene function and the phenotype during the life course

· understand how to investigate the environmental and stochastic effects on epigenome

· have an idea on the current status of the epigenetics research: what are the

opportunities and challenges

Content

EN: The course covers the fundamentals of environmental epigenetics in health and disease. Topics include environmental effects on the epigenome throughout the life course, from gametes and embryonic development to old age. The experts in this course will share the latest research findings, giving students an overview of the current state of epigenetics.

Additional information

EN: Target groups: 1. TRANSMED students 2. Students in other Master's and PhD programmes
Timing: Period IV. The course is arranged annually.

Completion methods: Lectures combined with self-learning, written assignments and group work, which may include a presentation and acting as an opponent

Activities and methods in support of learning: Lectures including various assignments including group work resulting into a presentation and acting as an opponent.

Assessment practices and criteria: No exam, grading is based on the evaluation of the various assignments associated with lectures, and performance in the group work.

Grading scale: Pass / Fail

Study materials

EN: Materials provided during the lectures including e.g. lecture slides, videos, and scientific (review) papers.

TMED-303 Metabolic Disorders from Aetiology to Therapy

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TMED-303 Metabolic Disorders from Aetiology to Therapy

Abbreviation: Metabolic Disor

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	5 cr
Languages	English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Sanna Lehtonen, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Prerequisites

EN: TRANSMED students: Human Anatomy and Physiology I and II, ABCs of Medical Genetics
Medical students: After completing the 4th year of studies

Equivalences to other studies

30286 Metabolic syndrome

Learning outcomes

EN:

- To be able to understand basic metabolic pathways
- To understand the pathophysiology of metabolic disorders such as diabetes mellitus, insulin resistance, metabolic syndrome and obesity
- To be able to use genetic knowledge as a basis for the prediction, diagnosis and treatment of metabolic disorders

Content

EN: Metabolic pathways, pathophysiology, diagnosis and treatment of type 1 and type 2 diabetes, insulin resistance, metabolic syndrome, obesity and dyslipidemia.

Additional information

EN: Target group
Students of the Master's Programme in Translational Medicine, especially in the Metabolic Disorders study track. MD students and other Master's or doctoral students

Timing

Period III. The course is arranged annually.

Teaching methods and activities to support learning
Interactive seminars and group work with students' own presentations and input and with teachers' feedback. Learning diaries to support reflection on the course contents.

Assessment practices and criteria

Grading: Pass/fail. Evaluation methods and criteria: performance in individual and group tasks (50%), completing the learning diaries (50%). Learning diaries required for at least 80% of the lectures.

Completion methods

Active homework and participation in the contact education, individual and group tasks. Presence at the first lecture is required. If unable to participate or you wish to cancel your participation in the course, contact the responsible teacher (sanna.h.lehtonen@helsinki.fi). Lectures (26 h), seminars and journal clubs (20 h), independent studies (75 h)

Responsible teacher

Prof. Sanna Lehtonen, Faculty of Medicine, University of Helsinki

Study materials

EN: Relevant scientific articles are provided during the course.

Completion method and assessment items	Recurrence	Credits
Method 1		5 cr
Participation in teaching		5 cr

TMED-406 Translational Psychiatry

TMED-406 Translational Psychiatry

TMED-406 Translational Psychiatry

Abbreviation: Translational P

Curriculum periods	2024-25, 2025-26
Validity period	since 9 Dec 2024
Credits	5 cr
Languages	English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisations	Master's Programme in Translational Medicine 50% Master's Programme in Neuroscience 50%
Responsible person	Henna-Kaisa Wigren, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Equivalences to other studies

TMED-403 Psychobiology of Stress

or

TMED-405 Corticolimbic Regulatory Systems in Health and Disease

Learning outcomes

EN: After completion of the course, the student

- can describe the components and function of the neural systems underlying emotional and motivational states
- can explain how these systems are perturbed in psychiatric disorders
- can identify the key molecular players contributing to perturbed brain function
- knows the basic experimental models used for studying psychiatric disorders resulting from dysfunctional regulatory systems
- has knowledge on the basis of pharmacological (and other) therapies for disorders discussed during the course
- is able to communicate and constructively discuss the topics in both written and oral form
- actively participates in group work and seminar discussions

Content

EN: Psychiatric disorders are thought to arise from dysregulation of neural systems underlying arousal, motivation, emotion and cognition. The aim of the course is to delineate the neuroanatomy and -physiology of these systems in the healthy and diseased brain. In addition, the molecular and neurochemical perturbations associated with these disorders will be covered. The course will highlight the contribution of various experimental models for understanding the disease processes in the human brain. The course also provides a biological framework for the current and emerging therapies for psychiatric disorders.

Additional information

EN: Target group
Students of the Master’s Programme in Translational Medicine, compulsory in study track Neuroscience and Psychobiology. Master’s Programme in Neuroscience and other Master’s and doctoral students.

Completion methods

For completion, 80% attendance in contact sessions, completion of the oral and written assignments, and passing the exam are required.

Activities and teaching methods in support of learning

The course consists of:

1. 7 specialist lecture days (2 x 45) associated with lecture assignments, supporting literature and discussion of the lecture topics.

2. Two interactive seminar days (3 x 45 min) for group presentations with teacher- and peer-feedback.

3. Writing a scientific text of a self-selected topic using the scientific writing format

4. Acting as a peer reviewer for a peer student's text providing written feedback on the text.

5. Final examination (2h) in Examinarium based on course content, assignments, group presentations and the essays.

Realisation:

The student

-participates in discussions on lecture days

-submits lecture assignments in Moodle, preferably before or right after each lecture

-prepares a group presentation

-acts as an opponent in other group's presentation

-writes a scientific text on self-selected topic related to course topic

-Gives and receives feedback on the scientific text (rehearsing peer review)

-Participates in the final Exam

Assessment practices and criteria

Lecture assignments (pass/fail), group presentation (group assessment by the teacher and the opponent group), essay (blind peer evaluation) and the final examination. Course grading (scale 0-5). The final grade is based on the examination (33%), group presentation grade (33%) and the written scientific text grade (33%).

Relations to other study units

Belongs to study unit Mechanisms of Human Disease in all study tracks of the Master’s Programme in Translational Medicine.

Responsible teacher

University lecturer Henna-Kaisa Wigrén#

Study materials

EN: The literature required for completion of the course consists of a selection of scientific review articles related to the lecture topics, given at the outset of the course. The students will also search for relevant literature for their presentations and written assignments during the course.

Completion method and assessment items	Recurrence	Credits
Method 1		5 cr
Participation in teaching		5 cr

TMED-503 Infection Biology

TMED-503 Infection Biology

TMED-503 Infection Biology

Abbreviation: Infection Biolo

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	5 cr
Languages	English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible persons	Ravi Kant, Responsible teacher Tarja Sironen, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Equivalences to other studies

30278 Infection biology

or

30497 Infection biology

Learning outcomes

EN: The student will be able to describe and discuss the essential topics and concepts in bacteriology, virology, parasitology and immunology, and their relation to selected human diseases.

Content

EN: 1. Bacteriology
Basic morphology, taxonomy, the genetics and metabolism of bacteria, microbial ecology including human normal flora, interaction between bacteria and eukaryotic cells, pathogenicity, virulence factors and basics of bacterial genomics.
Therapy: The function of antibiotics at the molecular level, diagnostic methods, vaccines against bacterial infections

Bacteria and disease association themes: Bacterial CNS infections, pneumonia, urinary tract infections, sepsis (TNFalpha cytokine storm)

2. Virology
The structure, classification and replication of viruses, general viral pathogenicity, virus genetics and evolution, general diagnostic methods, viruses and the immune system (e.g., viral immune evasion), viruses as tools for biotechnology

Therapy: antiviral therapy, vaccines against viral infections

Viruses and disease association themes: Emerging viruses and pandemics, viral respiratory tract infections, hepatitis, HIV

3. Parasitology
The life cycle and pathogenicity of parasites, therapy and clinical parasitology, general diagnostic methods

Parasites and disease association themes: Malaria, helminth infections and the immune response (Th2), vaccines against parasitic infections

4. Immunology
General functions of the cells, proteins and organs of the immune system; the maturation, interaction and regulations of innate and adaptive immune responses; clinically oriented immunology: autoimmunity, allergy and transplantation; vaccines: development (phases) and technology (conjugates, genome-based and DNA vaccines, live vaccines, complications etc.)

Immune system and disease association themes: Complement and inflammatory diseases, antibodies as mediators and markers of disease, T cells in health and disease, cytokines

Additional information

EN: Target group
Students of the Master's Programme in Translational Medicine, other Master's and doctoral students

Timing

May; the course is arranged annually.

Completion methods

Completion requires 75% attendance in lectures, attendance and a presentation in the Immunology seminar. Grading either a passing grade in presentation or a grading of presentation with scale 0–5.

Lectures 34 h

Online lectures 8h

Seminar 4 h
Preparation of a presentation 17 h
Independent study 70 h
Exam 2 h

Total 135 h

Activities and teaching methods in support of learning

Student activities: Attending the lectures and preparing questions based on prior material (online lecture videos and articles) provided, active participation and a presentation in the seminar. The teachers give lectures, participate in discussions and seminars, arrange question and answer sessions, etc.

Assessment practices and criteria

Course evaluation is based on the exam (covering bacteriology, virology and parasitology) (75%) and Immunology seminar (25%). Grading scale 0–5. Course evaluation is based on the exam (covering bacteriology, virology and parasitology) (100%) if the immunology seminar is graded with a passing grade.

Responsible teacher

doc. Tarja Sironen, doc. Ravi Kant
Relations to other study units

Replaces course 30497 Infection Biology

Study materials

EN: Recommended background reading:

- Gillespie and Bamford: Medical Microbiology and Infection at a Glance, 3rd ed., Blackwell, 2007 (now the 4th Edition, 2012, is available)
- Murray, Rosenthal and Pfaller: Medical Microbiology, 6th ed., Elsevier, 2009 (the 8th Edition, 2015, is now available)

- Irving, Boswell, Ala'Aldeen: Instant Notes in Medical Microbiology, Taylor & Francis, 2005 (the 2nd Edition, 2006, is now available)
- Murphy, Travers, Walport: Janeway's Immunobiology, 7th ed., Garland Science, 2008 ()I have not found any later Editions, thus the 7th would be our choice).

Completion method and assessment items	Recurrence	Credits
Method 1		5 cr
Participation in teaching		5 cr

NEU-521 Basic mechanisms of nervous system diseases

NEU-521 Hermoston sairauksien perusmekanismit

NEU-521 Grundläggande mekanismer bakom sjukdomar i nervsystemet

Abbreviation: Hermoston saira

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	1-5 cr
Languages	English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Neuroscience 100%
Responsible persons	Emil Ylikallio, Responsible teacher Henna Tyynismaa, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

EN: A prerequisite for successful completion of the course is that the student comprehends the basic concepts in genetics, molecular biology and neurobiology.

Learning outcomes

EN: After completion of the course the student:

- is familiar with clinical manifestations of selected nervous system diseases
- is familiar with the current understanding on the molecular basis and the underlying pathophysiological mechanisms of selected nervous system disorders
- has gained understanding into the research paradigms of nervous system disorders
- has gained understanding into the treatment paradigms of selected nervous system disorders

Content

EN: The lectures of the course include neurodegenerative, ischemic, neuroimmunological, neuropsychiatric and neuromuscular diseases. The lectures are given by both basic researchers and clinicians, who are experts on their topic.

Additional information

EN: Target group

1. Students of Master's Programmes in Neuroscience and Translational Medicine, and Doctoral Programme Brain & Mind.
2. Other MSc students and doctoral candidates interested in mechanisms underlying nervous system diseases

Timing

Period III

Assessment practices and criteria

For 5 credits: Final examination based on lectures and review articles indicated by the lecturers. Grading scale of the exam 0-5.

For 1 credit: 80% attendance in the lectures. Pass-fail

Completion methods

Lectures, 80% attendance required (1 credit);

Lectures, 50% attendance required, independent reading of literature, passing of the final exam (5 credits).

Equivalences with other studies

Replaces the former course 920007 Basic mechanisms of nervous system disorders 1.5-5 cr.

Responsible person

Henna Tyynismaa, Emil Ylikallio

EQF level: 7

Study materials

EN: Lecture material and specific scientific review articles indicated by the lecturers (1-2 articles / lecture).

Completion method and assessment items	Recurrence	Credits
Method 1		5 cr
Participation in teaching + exam		5 cr
Method 2		1 cr
Participation in teaching		1 cr

TMED-407 Recent advances in Neuroscience and Psychobiology

TMED-407 Recent Advances in Neuroscience and Psychobiology
TMED-407 Recent advances in Neuroscience and Psychobiology

Curriculum period	2025-26
Validity period	since 1 Aug 2025
Credits	2 cr
Languages	English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Annette Horstmann, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Equivalences to other studies

TMED-402 Cognitive Neuroscience and Psychobiology Journal Club

Learning outcomes

EN: Upon successful completion of this course, students will be able to:
1.Critically analyse recent scientific literature in neuroscience and psychobiology,

identifying key advancements and their implications.

2. Synthesise knowledge from diverse sources to understand current trends in the field.

3. Evaluate experimental methodologies and research designs, assessing their strengths

and limitations.

4. Communicate complex scientific concepts effectively in written form.

5.Engage in independent learning, managing and directing their own educational progress.

Content

EN: An examinarium exam, which is based on independent studying of selected on-line materials. The materials consist of both background and in-depth reading, such as book chapters and recent scientific articles. The selected materials may vary annually.

Additional information

EN: Target group: TRANSMED students and exchange students in MD track.

Timing: Individual timing during terms.

Completion methods: Examinarium examination.

Grading scale: Pass-Fail.

Completion method and assessment items	Recurrence	Credits
Method 1		2 cr
Examinarium-exam		2 cr

TMED-021 Research Proposal Examination

TMED-021 Research Proposal Examination

TMED-021 Research Proposal Examination

Curriculum periods	2024-25, 2025-26
Validity period	since 1 Aug 2024
Credits	5 cr
Languages	English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Tiina Immonen, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Prerequisites

EN: The topic can be agreed after the acceptance of the Master's thesis research plan. The examination is held after submission of the thesis.

Equivalences to other studies

TMED-101 Research Proposal Examination (Cancer)

or

TMED-201 Research Proposal Examination (Regenerative Medicine)

or

TMED-301 Research Proposal Examination (Metabolic Disorders)

or

TMED-401 Research Proposal Examination (Neuroscience and Psychobiology)

or

TMED-501 Research Proposal Examination (Cross-disciplinary Translational Medicine)

Learning outcomes

EN: The student will be able to address and integrate the wealth of data appearing in the current literature about particular aspects of translational research. The student will also be able to critically analyse data in the field.

Content

EN: The student proposes a research question in the field of translational research and writes a research plan in the form of a grant proposal. The topic is agreed between the student and the teacher, and it should be different from that of the student's accepted Master's thesis plan. Apart from the written text, the student will give an oral presentation of his/her grant proposal to be evaluated and discussed by the teacher together with an invited expert in the field of the proposal.

Additional information

EN: Target group: Students of the Master's Programme in Translational Medicine, study track Translational Research
Timing: Around the year except in July; recommended to be completed after submission of the thesis.

Completion methods: examination

Completion requires submission of a written research proposal on the given topic and an oral presentation and successful defence of the plan in front of an expert in the field and the teacher. The grant proposal should cover all necessary aspects for performing translational research on the topic, including a presentation of the field with objectives, background, methods, work plan, significance and budget, including a critical evaluation of the study and a future perspective.

Preparation of the written plan and oral presentation 134 h
Oral defence 1 h
Total 135 h

Responsible teacher: Tiina Immonen

Credit transfer instructions

EN: Cannot be credited with previous studies.

Completion method and assessment items	Recurrence	Credits
Method 1		5 cr
Independent study		5 cr

TMED-022 Imaging in Science and Medicine

TMED-022 Imaging in Science and Medicine

TMED-022 Imaging in Science and Medicine

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	5 cr
Languages	English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Marja Lohela, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Learning outcomes

EN: After completing the course, the student will be able to explain the general principles of the imaging methods covered, to describe some common applications for each method, and to assess the most important advantages, limitations and prerequisites associated with the methods. Students will also be able to roughly compare the different methods in terms of the resolution, speed and size of the imaging area/sample/subject, and to present criteria on which to base the choice of appropriate imaging modalities.

Content

EN: This course gives an overview of a range of modern imaging methods used in basic and pre-clinical/translational research. The course consists of lectures and imaging demonstrations given by experts in the field, self-learning assignments (e.g. extra online material and quizzes on lecture topics), a small-group journal club session, and a written assignment to write a research plan for using imaging methods covered on the course to answer a research question of interest. The topics of the lectures and demos cover imaging methods from microscopy of sub-cellular structures, through imaging of tissues, embryos, whole organs and pre-clinical disease models, to mapping the human brain. Examples include:
* Light microscopy, including 3D methods, intravital, and high content screening microscopy * Electron microscopy * Preclinical whole-body imaging, e.g. optical, CT, PET/SPECT * Human brain & mind imaging, including MRI methods * Imaging in behavioural studies *

Additional information

EN: Target group: Priority is for students of the Master's Programme in Translational Medicine. The course is available also for other Master's and doctoral students. The course has limited intake (12 seats)and will only be arranged in case of minimum of 7 participants.

Timing: Period III, arranged every second year (next time spring 2024).

Completion methods: Active attendance at each teaching session and exam is necessary; there is no option for only selflearning.
Course completion requires 90% attendance at lectures, demos and journal club sessions, and submission of all the assignments.

Activities and teaching methods in support of learning: The course format covers almost all topics both in classroom sessions where the theoretical basis and applications of different imaging methods are introduced, and in a direct demonstration of the methods and equipment (in smaller groups if necessary). Lecture slides, any further slides/other material presented at the demos and the independent study material will be made available online directly after the lecture and/or demo. Independent study of web tutorials

or review articles is followed by small assignments (e.g. online quiz) to assess learning, with grading and/or other forms of feedback. In the journal club, students will present published research where the imaging methods covered on the course have been used. This will give deeper insight into the real-life applications of these techniques and a chance to practice evaluation of their advantages and limitations, with the benefits of small-group learning. In addition, students will practise the evaluation of different imaging methods for answering a real-life research question in the research plan assignment, with feedback from both a teacher and a peer available before submission.

Assessment practices and criteria: The assessment is based on graded assignments (e.g. quizzes), the journal club, and the research plan, which are all designed according to the learning outcomes of the course. The grading scale is 0–5.

Responsible person: University researcher Marja Lohela (Biomedicum Imaging Unit), marja.lohela@helsinki.fi

Study materials

EN: Lecture slides and self-learning materials such as web tutorials, review articles etc. are provided by the lecturers on each topic. Journal club articles and instructions for both journal club assignment and research plan assignment will be available in the course Moodle; discussion tools can be used for asking questions and for general discussion. All materials are updated for each time the course is organised. Lecturers may give additional supplementary materials as deemed useful.

Credit transfer instructions

EN: Cannot be credited with previous studies.

Completion method and assessment items	Recurrence	Credits
Method 1		5 cr
Participation in teaching		5 cr

TMED-917 Introduction to Systems Biology

TMED-917 Introduction to Systems Biology

TMED-917 Introduction to Systems Biology

Abbreviation: Intro to System

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	5 cr
Languages	English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Sampsa Hautaniemi, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Prerequisites

EN: Basic skills in statistics and programming

Learning outcomes

EN: The student should be able to understand and evaluate scientific articles that use mathematical modelling, develop a statistical experimental design, and use mathematics to model physiological or intra-cellular processes.

Content

EN: Statistical experimental design, mathematical (quantitative/qualitative) modelling. Lectures 10 h, weekly exercises

Additional information

EN: Target group
Students of the Master's Programme in Translational Medicine, especially recommended for the study track Metabolic Disorders. The course is open also to MSc, MD and PhD students in the University of Helsinki.

Timing

Organized every second year in May. Can be taken either the first or second study year of the Master's studies.

Completion methods

Lectures, weekly exercises, project work

Activities and methods in support of learning

Tutored exercise sessions and programming practicals

Assessment practices and criteria

Weekly exercises (25%) and project work (75%). Grading scale 0–5.

Responsible teacher

Sampsa Hautaniemi

Study materials

EN: Lecture material, selected articles

Completion method and assessment items	Recurrence	Credits
Method 1		5 cr
Participation in teaching		5 cr

TMED-024 Translational Flow Cytometry

TMED-024 Translational Flow Cytometry
TMED-024 Translational Flow Cytometry

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	2 cr
Languages	English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Nina Peitsaro, Responsible teacher
Study level	Advanced studies

Study field	Fields of education (Ministry of Education and Culture), Medical science

Learning outcomes

EN: The aim of the course is to introduce flow cytometry as a method in translational research.
After the course the student will
- understand the basic principles of flow cytometers
- be familiar with the possibilities of the method and understand how the technology can be applied in research.
- have the knowledge required to build up a simple flow cytometry experiment

Content

EN: General principles of flow cytometry. Conventional and spectral flow cytometry. Insight into translational research utilizing flow cytometry. Hands-on experience in sample preparation, analysing and sorting samples with flow cytometers.

Additional information

EN: Target group
TRANSMED students. Limited intake (12 seats)

Timing

Period IV

Completion methods

Lectures 12 h
Laboratory work 12 h
Self-study 28 h
Examination 2 h

Activities and teaching methods in support of learning

The course combines a flipped learning approach and hands-on lab work. Students will get familiarized with the topic prior to the teaching sessions and do assignments. The lecture sessions will be interactive with discussions and assignments around the learning objectives. Hands-on sessions will include simple sample preparation, analysis and sorting on flow cytometers in the Biomedicum Flow Cytometry unit.

Assessment practices and criteria

Pass-Fail. Completion requires participation in the hands-on work and attendance to 80% of the lectures/ seminars, completing the assignments and passing the exam.

Responsible teacher

Doc. Nina Peitsaro

Study materials

EN: Lecture materials and selected articles

Completion method and assessment items	Recurrence	Credits
Method 1		2 cr
Participation in teaching		2 cr

TMED-927A Next-generation Sequencing and Single-cell Technologies in Biomedicine

TMED-927A Next-generation Sequencing and Single-cell Technologies in Biomedicine

TMED-927A Next-generation Sequencing and Single-cell Technologies in Biomedicine

Abbreviation: NGSSTB

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	5 cr
Languages	English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Outi Monni, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Prerequisites

EN: Basic familiarity with molecular biology concepts is expected.

Equivalences to other studies

3996721 Microarrays and next generation sequencing

or

TMED-910A Genome profiling

Learning outcomes

EN: The aim of this course is to introduce different next-generation sequencing (NGS) and single cell technologies, and their applications. The course will focus on different technologies, experimental issues, data analysis, and give practical examples on scientific and clinical approaches.

After the course the student
- will understand the basics of genomics and genetics and be able to describe the terminology
- has a basic understanding of the technological aspects of NGS and single cell technologies and their applications
- will understand how the technology can be applied in biomedicine
- will be aware of selected literature and research in the field

Content

EN: 1.Next-generation sequencing (NGS) and single cell technologies:

- most commonly used NGS technologies, such as sequencing-by-synthesis, and single molecule real time sequencing
- NGS technologies for studying genetic variation
- NGS technologies for studying gene expression
- single cell and spatial genomics technologies
- data analysis tools

2. Applications of these technologies in biomedicine such as:

- Pharmacogenetics and pharmacogenomics
- Epigenetics and epigenomics
- Microbiome and metagenomics

- Cancer genomics
- Immunology and immunomics
- Neurogenetics and genomics
- Gene regulation

3. Webinar and group work

4. Group work presentations from a selected paper

Additional information

EN: Target group
Students of the Master's Programme in Translational Medicine and other Master's or doctoral students.

Timing

Period IV. The course is arranged annually.

Completion methods: participation in teaching

The course consists of 20 hours of lectures, 4 h of group presentations by students based on scientific articles, a webinar and associated group work (4h), an exam (2 h), and 105 h of self-learning and team work.

Activities and methods in support of learning

The course consists of contact teaching and lectures, and individual learning requires the students to read supporting material for each course lecture as well as engage in team-based learning in preparing for the group presentations. The students will get feedback from their presentations from their peers and course instructors.

Assessment practices and criteria

Scale 0-5. Grading is based on the exam.

Completion requires passing the exam, participation of the group work and attendance to 80% of lectures.

Responsible teacher

Doc. Outi Monni

Study materials

EN: Selected articles.

Completion method and assessment items	Recurrence	Credits
Method 1		5 cr
Participation in teaching		5 cr

TMED-927B Next-generation Sequencing and Single-cell Technologies Lab Course

TMED-927B Next-generation Sequencing and Single-cell Technologies Lab Course

TMED-927B Next-generation Sequencing and Single-cell Technologies Lab Course

Abbreviation: NGLAB

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	1 cr
Languages	English
Grading scale	Pass-Fail
University	University of Helsinki

Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Outi Monni, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Tweet text

EN: The course will give hands-on training in one of the next generation sequencing (NGS) technologies covered in TMED910A

Prerequisites

EN: TMED-927A Next-generation sequencing and single cell technologies in biomedicine

Equivalences to other studies

TMED-910B NG Sequencing

Learning outcomes

EN: The student will understand the basic principles of a next-generation sequencing technology and the related analyses.

Content

EN: The course will give hands-on training in one of the next generation sequencing (NGS) technologies covered in TMED-927A. Students will start with a quality assessment of the samples. The section includes sample preparation for sequencing and a demonstration of the sequencing run. After the sequencing, students can explore their data and get an introduction to the basic tools for NGS data pre-processing and analysis.

Additional information

EN: Target group
The course has limited capacity (10 students) and accepts primarily TRANSMED students. (Study track Translational Research).

Timing

Period IV (April). The course is arranged annually.

Completion methods

Hands-on practicals 10 h, and associated lectures 3 h. Students need to provide a learning diary (10 h).

Activities and teaching methods in support of learning

The students need to get familiarized with the laboratory protocol to be followed at the course, and write a reflective learning diary.

Assessment practices and criteria

Pass – Fail. Passing requires 100% attendance and an accepted learning diary.

Responsible teacher

Doc. Outi Monni

Study materials

EN: Protocols provided at the course.

Completion method and assessment items	Recurrence	Credits
Method 1		1 cr

Participation in teaching 1 cr

TMED-023 Epidemiology – Basic concepts and practical analyses

TMED-023 Epidemiology – Basic concepts and practical analyses

TMED-023 Epidemiology – Basic concepts and practical analyses

Curriculum period	2025-26
Validity period	since 1 Aug 2025
Credits	5 cr
Languages	English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Jari Kalevi Haukka, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Equivalences to other studies

TMED-906 Epidemiology

Learning outcomes

EN: The student should be able to
Describe and explain

- Epidemiology and its use in medicine and health sciences
- Epidemiologic concepts such as population, exposure, intervention, environment, follow-up, correlation and causation
- Study designs (such as, cross-sectional, case-control, cohort, ecological, experimental)
- Different types of bias in epidemiologic study and means to control them. Epidemiological quantifying measures such as incidence, prevalence, risk ratio, odds ratio, absolute risk difference, number needed to treat (NNT)
- Use of common tools to read epidemiological articles (PICO strategy)

Critically read epidemiologic articles

Discuss and write a critical review of a published epidemiologic study

Content

EN: Introduction epidemiology and its use in health sciences and medicine
The basic concepts in epidemiology
Epidemiological study designs in short
Controlling errors and bias
Critical reading with structured tools in epidemiology
Assignments from lectures
Seminar presentation of one epidemiologic paper with structured tool
A prepared comment on one seminar presentation

Additional information

EN: Target group:
Students of the Master’s Programme in Translational Medicine and other MSc students

Timing:

Period II, 1st study year. The course is arranged annually.

Completion methods: Contact teaching. The course includes three obligatory lectures and seminar (100% attendance required). For other lectures, 80 % attendance is required. Lectures with a flipped classroom.

Activities and teaching methods in support of learning:

Student activities:
Seminar (the student's own presentation and a prepared discussion for another)
Summary report of one paper for feedback: What is the role of epidemiology in science? How does epidemiology influence
our thinking?

Teacher's activities:
Lectures and a flipped classroom
Commenting on the summary report
Commenting on the presentations

Assessment practices and criteria: Grading scale: Pass/fail. All activities are required to be completed (assignments, summary report, lecture attendance, seminar attendance, seminar presentation, feedback).

Responsible teacher: Sr. university lecturer Jari Haukka

Study materials

EN: BMJ: epidemiology for the uninitiated (free online material)
https://www.bmj.com/about-bmj/resources-readers/publications/epidemiology-uninitiated

and NICE checklists for cohort studies and case-control studies

https://www.nice.org.uk/process/pmg6/resources/the-guidelines-manual-appendices-bi-2549703709/chapter/appendix-e-methodology-checklist-casecontrol-studies

https://www.nice.org.uk/process/pmg6/resources/the-guidelines-manual-appendices-bi-2549703709/chapter/appendix-d-methodology-checklist-cohort-studies

Completion method and assessment items	Recurrence	Credits
Method 1		5 cr
Participation in teaching		5 cr

NEU-603 Laboratory animal science

NEU-603 Koe-eläintiede

NEU-603 Försöksdjursvetenskap

Abbreviation: LAS NEU-603

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	1-5 cr
Languages	English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Neuroscience 100%
Responsible persons	Mikael Segerstråle, Responsible teacher Eva Ruusuvuori, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Tweet text

EN: The course covers the main aspects you need to know when using animals for scientific purposes: from basic theory and handling to advanced design of projects.

Equivalences to other studies

522049 Lectures in Laboratory Animal Science

or

522055 Practical Work in Laboratory Animal Science

or

522085 Laboratory Animal Science: Design of Animal Experiments

Learning outcomes

EN: The aim of the course is to provide theoretical and practical training in laboratory animal science in accordance with the Directive 2010/63/EU and national legislation.
Basic theoretical studies (2 credits)# provide the obligatory theoretical knowledge for persons euthanizing or carrying out procedures on animals and designing procedures and projects involving animals.

Hands-on exercises (1 credit) Students will learn to apply their theoretical knowledge on *e.g.*, handling, marking and sample collection in an actual hands-on situation under supervision.

Advanced#Design Exercises(2 credits) Students obtain in depth knowledge on how to design procedures and projects with an emphasis on animal welfare and on understanding and implementing good scientific practices.

Content

EN: Content
The course content follows the structure outlined in the EU Expert Working Group document (February 2014) on common education and training framework in the EU.

The basic theoretical studies (2 cr)# cover e.g. legislation; ethical aspects; biology and husbandry of laboratory mice and rats; design and conduct of animal experiments; minimally invasive experimental procedures; humane endpoints; and assessment of pain, distress and suffering, anesthesia and surgical procedures. Note that the basic material focuses on rats and mice. If you want to gain competence to work with other animal species, e.g., zebrafish, please contact the responsible teacher Mikael Segerstråle.

The practical hands-on exercises (1 cr)# include training appropriate handling of the common laboratory rodents (mice and/or rats), and in basic procedures, such as marking animals, blood sampling, injections, induction and maintenance of anesthesia, and humane methods of killing. Responsible teacher Mikael Segerstråle.

The advanced design exercises (2 cr)# cover level II education in implementation of 3Rs when designing procedures and projects; and in the principles of good scientific strategies necessary to achieve robust results; enhance understanding of legal and regulatory framework within which projects are constructed and managed, and of the legal responsibilities of those working with animals; and give training in identifying, understanding and responding appropriately to the ethical and welfare issues raised by the use of animals for scientific purposes. Responsible teacher Eva Ruusuvuori.

Additional information

EN: Completion methods
#To pass Basic theoretical studies (2 cr) students need to 1) acceptably complete the relevant study-material, and 2) pass the final exam. The study-material of Basic theoretical studies must be successfully completed before participating practical hands-on or advanced design exercises.

To pass Hands-on exercises students need to 1) attend practical work sessions (100 % attendance) and 2) demonstrate acquisition of the required skills. The hands-on part gives competence to do basic procedures to mice. For students who need to gain competence to work with rats, an additional course day will be organized.

To pass Advanced Design Exercises students need to 1) acceptably complete the relevant study-material , 2) attend contact teaching and group work sessions (100 % attendance), 3) accomplish assignments given during the course; and 4) finalize group work.

Assessment practices and criteria:

Basic theoretical studies (2 credits): Assessment is based on a final exam covering the study material (grading 0-5).

Hands-on exercises (1 credit): Assessment (pass/fail) is based on a separate evaluation matrix.

Advanced Design Exercises (2 credits): Assessment is based on course assignments (grading 0 – 5).

5 credits: Grading scale 0-5, based on the exam on study material and the grade from design exercises; hands-on (pass-fail).

Target group

For those who aim to gain competence to do procedures on animals or to design procedures and projects on animals, the courses are mandatory as explained below. Theoretical studies and design exercises are suitable to all students and university personnel interested in research involving animals and for those who want to continue their professional development.

- The Basic theoretical studies are obligatory for persons carrying out procedures on animals (function A competence), for persons designing procedures and projects involving animals (function B) and killing animals (function D).
- The hands-on exercises are obligatory for persons carrying out procedures on animals and euthanizing them (functions A and D competence) and recommended for those aiming for function B competence (designing procedures and projects involving animals).
- The Advanced design exercises are obligatory for persons who want to become competent to design procedures and projects involving animals (function B competence).

For the hand-on exercises, priority is given for degree students of the following study programmes: Master's Programme in Neuroscience, Master's Programme in Pharmacy, Master's Programme in Translational Medicine, and Master's Programme in Pharmaceutical Research, Development and Safety, and the Doctoral Programme Brain & Mind and Doctoral Programme in Drug Research.

Teaching period when the course will be offered

Web-material can be completed year-round and must be successfully finalized before attending hands-on teaching (period 2 and 4) or design exercises (period 2).

Teaching language

English

This course can be arranged in a different format and with different assessment method for open university students.

Motivational letter for hands-on exercises

Participants to the hands-on exercises are selected based on their motivational letter explaining why the candidate needs to complete the practical training part. The registration for the course closes **4 weeks** before the start of the course. **Registration to this course is binding**. Cancellation must be done before the registration period ends.

EQF level: 7

Study materials

EN: After enrolling to the course, students gain access to “LASDigi” study-material. Lecturers may provide additional study material.

Completion method and assessment items	Recurrence	Credits
Method 1		5 cr
Participation in teaching (LAS Online Theory)		2 cr
Participation in teaching (Design)		2 cr
Participation in teaching (Hands-on)		1 cr

LSI36001 Clinical data mining

LSI36001 Clinical data mining

LSI36001 Clinical data mining

Abbreviation: CDM

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	5 cr
Languages	English, Swedish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Life Science Informatics 100%
Responsible persons	Sampsa Hautaniemi, Responsible teacher Taru Muranen, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Tweet text

EN: Clinical Data Mining: A course on learning basic methods and tools to analyze real-world clinical data.

Prerequisites

EN: Basic statistics.

Learning outcomes

EN: After this course students are be able to 1) understand nature and typical issues in clinical data, 2) choose proper statistical and data mining analysis tools for solving clinical research questions, 3) understand medical literature related to clinical data analysis, and 4) be able to execute statistical analysis of clinical data.

Content

EN: Introduction to scientific thinking, data types, data transformations, statistical testing, clustering clinical data, predicting a clinical outcome.

Additional information

EN:

Completion methods

- Can be taken as distance learning course. All material will be available in Moodle.
- No lectire attendance requirements.
- Weekly exercises and project work.

Assessment practices and criteria

Grading scale is 1-5.

Weekly exercises are grade and contribute to the final grade. Details explained in the course.

Activities and methods in support of learning

One topic of clinical data mining is covered in a one week period consisting of a lecture and exercises. The lecture gives an overview of the topic. To test their learning, students are given exercises, which they solve at home and then present and discuss during exercise session.

Target groups

Master's Programme in Life Science Informatics is responsible for the course.

Module where the course belongs to:

- Bioinformatics and Systems Medicine

The course is available to students from other degree programmes.

Teaching period when the course will be offered
NOTE! The course will be taught next time on year 2024-2025

The course is offered every second year.

Recommended time or stage of studies for completion

The recommended time for completion is after a basic statistics course.

Study module

Bioinformatics and Systems Medicine of LSI.

Expiry of studies

In accordance with University guidelines.

Language of instruction

English

EQF level

Master's / EQF level 7

Study materials

EN: Material provided at the course

Credit transfer instructions

EN: In accordance with University guidelines.

Completion method and assessment items	Recurrence	Credits
Method 1		5 cr
Participation in teaching		5 cr
Method 2		5 cr
Exam		5 cr
Method 3		5 cr
Participation in teaching		5 cr
Method 4		5 cr
Participation in teaching		5 cr

LSI36002 Systems medicine seminar

LSI36002 Systems medicine seminar

LSI36002 Systems medicine seminar

Abbreviation: SMS

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	5 cr
Languages	English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Life Science Informatics 100%
Responsible person	Sampsa Hautaniemi, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Tweet text

EN: Seminar with a changing, recent systems medicine topic

Prerequisites

EN: Basic understanding of biology and medicine is recommended. Some programming skills in R/Python. Ability to read scientific literature.

Learning outcomes

EN: After the course a student is able to understand and execute analysis in the topic discussed in this course. The students also learn to make scientific reports.

Content

EN: Each session consists of group presentations that are based on literature and group's data analysis results. The presentations are expanded to a report that is delivered.

Additional information

EN: The topic of the seminar is changing. Examples of topics are "Multi-omics integration" and "single-cell RNA-seq data analysis". Ability to work in groups is essential. As is data analysis skills so that each member of the group can contribute to the results, presentations and final report.

Completion methods

This course cannot be taken as a distance learning course.

Students are required to participate in seminars and work in groups.

Assessment practices and criteria

Grading scale is PASS/FAIL.

Activities and methods in support of learning

A group is given an article to read and exercises to conduct. All groups present their results and analysis of the articles. Active participation in discussing the articles and their merits is required.

Target groups

Master's Programme in Life Science Informatics is responsible for the course.

Module where the course belongs to:

- Bioinformatics and Systems Medicine

The course is available to students from other degree programmes.

Teaching period when the course will be offered

Every second year. Odd years. November-December.

Recommended time or stage of studies for completion

Preferably second year of the MSc program.

Study module

Bioinformatics and Systems Medicine of LSI.

Expiry of studies

In accordance with University guidelines.

Language of instruction

English

EQF level

Master's / EQF level 7

Study materials

EN: Articles and tutorials are provided.

Credit transfer instructions

EN: In accordance with University guidelines.

Completion method and assessment items	Recurrence	Credits
Method 1		5 cr
Participation in teaching		5 cr

NEU-415 Creative scientific thinking

NEU-415 Luova tieteellinen ajattelu
NEU-415 Kreativt vetenskapligt tänkande

Abbreviation: Luova tieteelli

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	1 Aug 2023-31 Jul 2026
Credits	5 cr
Languages	English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisations	Master's Programme in Neuroscience 50% Master's Programme in Genetics and Molecular Biosciences 50%
Responsible persons	Reijo Käkelä, Responsible teacher Eva Ruusuvuori, Responsible teacher Leonardo de Almeida Souza, Responsible teacher Elina Roine, Responsible teacher Minna Poukkula, Responsible teacher
Study level	Advanced studies

Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Tweet text

EN: Online activity taking two semesters and enhancing empathy, team work skills, and abilities to handle complex phenomena and find creative new solutions.

Prerequisites

EN: No prerequisites.

Learning outcomes

EN: The creative activity will encourage the participants to integrate material and information across subject areas, question their assumptions, and imagine new viewpoints and possibilities. The goal is to promote collaborative and innovative scientific thinking. The open-minded search of new ideas is followed by analytical thinking and building logical graphical models. Participants are encouraged to take advantage of their personal interests and experiences to aid their reasoning in a scientific context.

Content

EN: The activity takes place online, and after students have submitted their first thoughts on the trigger material and questions, they have a group work session where a graphical mind map organizing the ideas of all participants is prepared. The questions require creative thinking and do not have one predicted solution. The mind maps produced by groups are discussed in a following session with invited experts. Each case is completed by submitting a rethinking assignment.

Additional information

EN:

Completion

Students take part in 6 cases of the creative activity programme and a spring event, and prepare the different assignments related to them. Few missed cases can be compensated by a small scale creative scientific project, according to instructions of NEU-416 Creative scientific project but included as supplementary work to accomplish NEU-415 Creative scientific thinking.

Assessment practices and criteria

After getting familiar with the trigger material of a case, participants submit their preliminary ideas of the case topic to Moodle. They then participate in two sessions of the case: the first one includes group work and producing and submitting of a mind map in graphical form, and the second one includes discussions on the created mind maps with invited experts, and a rethinking assignment.

Target groups

Student’s from any bachelor’s, master’s and doctoral programmes can attend and will be working in heterogeneous groups. Teaching and research staff are also welcomed to join the working groups. This course can be arranged in a different format and with different assessment method for open university students. Master’s Programme in Neuroscience is responsible for the activity, which is organized in collaboration with Master's Programme in Genetics and Molecular Biosciences.

Teaching period when the course will be offered

Periods 1–4, annually. The course takes two semesters and can be started either at the beginning of autumn or spring semester.

Language of instruction

English

EQF level

7

Study materials

EN: The trigger materials for the creative group work are provided by the facilitators of each case. The case themes are interdisciplinary, which allows persons with different backgrounds from basic biosciences to applied, technical or humanistic fields to participate.

Completion method and assessment items	Recurrence	Credits
Method 1		5 cr
Participation in teaching		5 cr

NEU-416 Creative scientific project

NEU-416 Luova tieteellinen projekti

NEU-416 Kreativt vetenskapligt projekt

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	2-5 cr
Languages	English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisations	Master's Programme in Neuroscience 50% Master's Programme in Genetics and Molecular Biosciences 50%
Responsible persons	Reijo Käkelä, Responsible teacher Eva Ruusuvuori, Responsible teacher Leonardo de Almeida Souza, Responsible teacher Elina Roine, Responsible teacher Katri Wegelius, Administrative person Minna Poukkula, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Tweet text

EN: Students plan, perform and report a creative scientific project based on their own innovative idea, utilizing their interests and often artistic content.

Prerequisites

EN: NEU-415 Creative scientific thinking (recommended ongoing)

Learning outcomes

EN: The students are given the possibility to carry out a creative scientific project based on their own innovative idea and utilizing their particular interests. The project promotes interdisciplinary thinking and can have artistic implementation. The project encourages to take initiatives, innovate and may lead to entrepreneurship.

Content

EN: Students plan, perform and report the results of a creative project based on their own innovative idea, utilizing their particular interests. The projects or ideas may pursue immaterial or material outcomes and can include artistic content. The media that is used to present the work is not restricted, provided that the scientific content remains sufficient. Project can be accomplished individually or as a member of a group.

Additional information

EN:

Completion methods

Project plan describing an overview of the project, its participants and their roles, supervision and consultations, scientific content, creativity aspects, schedule and practical implementation, and publication of the project. The plan needs to be accepted by responsible teachers before initiating the project. The course is passed when the project is accomplished essentially as planned or with alterations approved by responsible teachers. To confirm this, the project results are presented, and the possible changes in the plan are reported and their influence on the outcome is reflected.

Assessment practices and criteria

Written project plan, and supervised completion of the project with the result approved by responsible teachers.

Activities and methods in support of learning

Regular consultations with supervisor and when applicable with Helsinki Think Company or other experts are provided.

Target groups

Bachelor's, master's and doctoral students who also study NEU-415 Creative scientific thinking.

Teaching period when the course will be offered

Periods 1-4.

EQF level

7

Study materials

EN: All supporting materials are provided in Moodle.

Completion method and assessment items	Recurrence	Credits
Method 1		2-5 cr
Participation in teaching		2-5 cr

TMED-106 Novel applications for precision medicine

TMED-106 Novel applications for precision medicine

TMED-106 Novel applications for precision medicine

Curriculum periods	2024-25, 2025-26
Validity period	since 1 Aug 2024
Credits	2 cr
Languages	English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible persons	Nina Linder, Responsible teacher Astrid Murumägi, Responsible teacher Sara Kuusela, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Prerequisites

EN: Basic knowledge of cancer biology

Learning outcomes

EN: The aim of the course is to provide an in-depth understanding of the terminology, methodologies, and cutting-edge research applications in precision oncology.
After the course the student

- Understands the foundations of precision oncology
- Comprehends novel technologies applied in functional precision oncology
- Knows the basic applications for AI-based cancer diagnostics
- Recognizes the potential of integrating genomics-based and functional precision oncology approaches

Content

EN: The course consists of about 18 hours of contact teaching given by experts in the fields of medicine and biomedicine. Details are found on the Moodle page of the course. In the beginning of the course, students are divided into groups of 2-3 students for a group assignment.
Contents:

1. Overview of precision oncology

2. Latest models and technologies applied in the field

· Patient-derived models such as organoids to guide precision medicine

· Drug sensitivity and resistance testing (lab demo by HTB unit)

· High content image-based drug testing (lab demo by HCA unit)

· Multiplexed immunofluorescence (lab demo by Digital Pathology unit)

· Artificial intelligence-based cancer diagnostics (demo in lab

· Point-of-care digital cancer diagnostics in a global perspective

3. Application of precision oncology in solid tumors and pediatric cancers

4. Precision medicine and genomics

• The FinnGene Project (lecture)

6. Group learning

7. Exam

8. Feedback discussions

Additional information

EN: Target group
App. 25 students are accepted: 15 TRANSMED students, and 10 students from other degree programs, in order of registration. The course will be organized if at least 10 students register.

Recommended time/stage of studies for completion

The course is tailored for TRANSMED students and other master's students from life sciences (Bachelor of Science/Medical student from 2nd year) as minimum requirement. No previous experience precision medicine is required. However, basic familiarity with cancer biology is expected.

Timing

Period II.

Course completion methods

The course consists of contact teaching, lectures, group work and individual learning is required from the students to read supporting material for each course lecture as well as group learning in preparing for the group presentations. We require 80% of attendance and a course exam is used as a method of completion.

Realisation:

- Pre-assignment 1 h
- Contact teaching including group work = 18 h comprising of the following:
- Lectures 9 h
- Group work 6 h
- Demos in lab 3 h
- Exam 2 h
- Independent studies 33 h
- Feedback discussion 1 h
- Total 2 credit points = 50 h

Activities and teaching methods in support of learning

Student activities e.g., group discussions and work, brainstorming, buzz groups, case studies.

Assessment practices and criteria, grading scale

After the course there will be a written exam in English. The assessment practices used are directly linked to the learning outcomes and teaching methods of the course. Grading scale 0-5. 80% of the grade is based on the exam and 20% on group assignment as well as on activity during lectures.

Responsible teacher

Nina Linder, MD, PhD, Adjunct Professor, FIMM-Institute for Molecular Medicine Finland, UH

Astrid Murumägi, PhD, Adjunct Professor, FIMM-Institute for Molecular Medicine Finland, UH

Study materials

EN: Lecture slides and supportive reading will be distributed via the Moodle learning environment.

Completion method and assessment items	Recurrence	Credits
Method 1		2 cr
Participation in teaching		2 cr

TMED-104 Book Examination (Cancer)

TMED-104 Book Examination (Cancer)

TMED-104 Book Examination (Cancer)

Abbreviation: Book Exam Ca

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	8 cr
Languages	English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Päivi Ojala, Responsible teacher
Study level	Advanced studies

Study field	Fields of education (Ministry of Education and Culture), Medical science

Learning outcomes

EN: To be able to describe and understand the basic concepts in cancer biology.

Additional information

EN: Target group
Students in Master's Programme in Translational Medicine.

Timing

Autumn and spring term.

Completion methods

Examinarium examination.

Assessment practices and criteria

Passing the exam. Grading 0-5.

Responsible teachers

prof. Päivi Ojala

Study materials

EN: Robert A. Weinberg, The Biology of Cancer 2nd edition or later

Completion method and assessment items	Recurrence	Credits
Method 1		8 cr
Exam		8 cr

TMED-204 Book Examination (Regenerative Medicine)

TMED-204 Book Examination (Regenerative Medicine)
TMED-204 Book Examination (Regenerative Medicine)

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	5-10 cr
Languages	English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Esko Kankuri, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Additional information

EN: Target group
Students of Master's Programme in Translational Medicine, exchange students in Faculty of Medicine

Timing

Autumn and spring term.

Completion methods

Independent learning of the agreed exam materials and an examinarium examination.

Assessment practices and criteria

Grading scale 0-5.

Responsible teacher

doc. Esko Kankuri

Study materials

EN: Selected chapters from Atala, Lanza, Mikos, Nerem: Principles of regenerative medicine 2019 (https://helka.helsinki.fi/permalink/358UOH_INST/1n5fii6/alma9933077973506253)
and

Lanza, Langer, Vacanti, Atala: Principles of tissue engineering 2020 (https://helka.helsinki.fi/permalink/358UOH_INST/1n5fii /alma9933333563506253).

Additional reading materials may vary annually and depend on scope of the exam. Before the examination, the contents must be agreed with doc. Esko Kankuri. 5 cr requires about 500 hard copy pages, 10 credits about 1,000 pages. The scope of the exam can be between 5–10 credits.

Completion method and assessment items Recurrence	Credits
Method 1	5 cr
Exam	5 cr
Method 2	6 cr
Exam	6 cr
Method 3	7 cr
Exam	7 cr
Method 4	8 cr
Exam	8 cr
Method 5	9 cr
Exam	9 cr
Method 6	10 cr
Exam	10 cr

TMED-921 Book Exam: Alberts, Essential Cell Biology

TMED-921 Book Exam: Alberts, Essential Cell Biology

TMED-921 Book Exam: Alberts, Essential Cell Biology

Abbreviation: Book Exam: Albe

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	6 cr
Languages	English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Nina Peitsaro, Responsible teacher
Study level	Other studies

Study field	Fields of education (Ministry of Education and Culture), Medical science

Learning outcomes

EN: To learn the basic cell biology to support TRANSMED studies.

Additional information

EN: Target group
Students of the Master's Programme in Translational Medicine.

Timing

Autumn and spring terms.

Copmletion methods

Examinarium examination.

Assessment practices criteria

Grading scale 0-5.

Responsible teacher
University lecturer Nina Peitsaro

Study materials

EN: B Alberts, D Bray, K Hopkin, A Johnson, J Lewis, M Raff, K Roberts, P Walter. Essential Cell Biology, 5th or 6th Edition Garland Science

Completion method and assessment items	Recurrence	Credits
Method 1		6 cr
Exam		6 cr

TMED-922 Participation and Presentation in Scientific Meeting

TMED-922 Participation and Presentation in Scientific Meeting
TMED-922 Participation and Presentation in Scientific Meeting

Abbreviation: Scientific Meet

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	1-5 cr
Languages	English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Tiina Immonen, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Learning outcomes

EN: To learn the current trends and methods in relevant research and to get connected with the international research community.

Additional information

EN: Target group
Students of the Master's Programme in Translational Medicine.

Completion methods

Participation and, optionally, oral or poster or other type of presentation in a domestic or international scientific meeting.

Assessment practices and criteria
Pass-Fail. A certificate of attendance, a copy of the conference programme and a copy of poster/presentation abstract is required.

Responsible teacher

University lecturer Tiina Immonen

Completion method and assessment items	Recurrence	Credits
Method 1		1 cr
Independent study (min)		1 cr
Method 2		5 cr
Independent study (max)		5 cr
Method 3		2 cr
Independent study		2 cr
Method 4		3 cr
Independent study		3 cr
Method 5		4 cr
Independent study		4 cr

TMED-925 Interdisciplinary Project Work

TMED-925 Interdisciplinary Project Work
TMED-925 Interdisciplinary Project Work

Abbreviation: Interdisciplina

Curriculum periods	2024-25, 2025-26
Validity period	since 1 Aug 2024
Credits	1-15 cr
Languages	English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Tiina Immonen, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Content

EN: A documented project work involving arrangement of scientific events, product development, solutions to working life problems etc. The work should be completed in interdisciplinary teams e.g. in connection of a domestic or international competition, or as a supervised project with members from different educational programmes. The participants in interdisciplinary teams can represent both universities and polytechnics.

Additional information

EN: 5 cr is equal to PHD-312 Helsinki Pre-Incubators

Target group

Students of the Master's Programme in Translational Medicine

Timing

Free

Completion methods

The student needs to present the final report of the project, and submit an individual report including description of their own contribution to the project. The individual report must also include a reflection on the development of student's communication and group working skills.

5 cr: Participation and completion of HealthX or Pathways pre-incubator programmes organized by Helsinki Incubators. Student needs to present the certificate issued by the entrepreneurship & innovation services of the University of Helsinki.

15 cr: Participation and completion of iGEM competition in Aalto-Helsinki team. Documentation of the students role in the team and the team project are required.

Assessment practices and criteria

Pass-Fail

Responsible teacher

University lecturer Tiina Immonen, tiina.immonen@helsinki.fi

Completion method and assessment items	Recurrence	Credits
Method 1		1 cr
Independent study (min)		1 cr
Method 2		15 cr
Independent study (max)		15 cr
Method 3		5 cr
Independent study		5 cr

TMED-929 Drug Discovery & Development with a Focus on Biologics

TMED-929 Drug Discovery & Development with a Focus on Biologics

TMED-929 Drug Discovery & Development with a Focus on Biologics

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	1-2 cr
Languages	English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible persons	Michael Jeltsch, Responsible teacher Jaan-Olle Andressoo, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Equivalences to other studies

TMED-929B Drug Discovery & Development with a Focus on Personalization and Biologics

or

TMED-929A Drug Discovery & Development with a Focus on Personalization and Biologics

Learning outcomes

EN: After completion, the student will be able to describe individual steps in the drug discovery and development process (target identification, preclinical studies, clinical studies, approval process, market introduction, etc.). Students will be able to identify, explain, and critically analyse choices in the design of preclinical and clinical drug development. They also will be able to critically appreciate the importance of criteria beyond science in the drug development decisions by "big pharma" or biotech start-ups both from the viewpoint of the company and the prospective patients.

Content

EN: Focus areas of the course will be the individual steps of the "classic" drug development pipeline, starting from target identification to the choice of preclinical animal models. Personalized diagnostics and medicines and especially biological drugs can be addressed as these become more and more relevant to the drug development process. The course will be divided into lectures/seminars (1 cr) and additional individual learning/group work with an initial kick-off contact session and a final student group presentation session about the development of a selected biopharmaceutical (2 cr).

Additional information

EN: Target group: Students of the Master's Programme in Translational Medicine and other Master's or doctoral students. Attendance to 2 cr course is limited to 25 (priority given for TRANSMED students).

Timing: Autumn (period II). The course is arranged annually.

Completion methods:

1 credit completion requires 80% attendance to lectures and fulfilled pre-assignments. 16 h lectures, 14 h independent study.

2 credit completion requires 80% attendance to lectures and fulfilled pre-assignments. In addition, students need to participate in the group work (the presentation should have an acknowledgment slide which lists the individual contributions). 16 h lectures, 28 hindependent study, 5 h group work seminars (2 h min kick-off, 3 h final presentation session & feedback), 6 h group work (students meet on their own schedule), 4 h preparation of the presentation.

Activities and teaching methods in support of learning: Students will be able to choose a drug development project of their choice from a list of drugs that will be presented during the first group work contact session. Students need to indicate their contribution to the group project and the groups will evaluate each other's presentations at the end of the course. Each presenting group will have a dedicated opponent group, who is supposed to closely follow the presentation and evaluate the performance. Before each contact session, students receive pre-assignments (e.g. reading an article and answering short questions on Moodle).

Assessment practices and criteria: Pass-Fail.

Responsible person: Michael Jeltsch, Jaan-Olle Andressoo

Study materials

EN: For the group work, students will be provided with a literature list (scientific articles, books, drug information websites, videos) specific to the drug of their choice. For the pre-assignments to the lectures, selected articles will be provided.

Completion method and assessment items	Recurrence	Credits
Method 1		1 cr
Participation in teaching		1 cr
Method 2		2 cr
Participation in teaching		2 cr

PROV-503 Selected topics in clinical pharmacology

PROV-503 Selected topics in clinical pharmacology

PROV-503 Selected topics in clinical pharmacology

Abbreviation: Valittuja kohti

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	5 cr
Languages	English, Finnish, Swedish
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Pharmacy 100%
Responsible person	Tomi Rantamäki, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Health and welfare

Equivalences to other studies

59085 Selected Topics in Clinical Pharmacology

Learning outcomes

EN: After the study period the student understands the basic concept of clinical pharmacology and can comprehensively present specific topic.

Content

EN: This provides a general overview on clinical pharmacology + selected patient examples. The students will select one specific topic in clinical pharmacology and present it during seminars. After the course, the student knows the clinical pharmacology of drugs used in the treatment of key disease groups and the scientific basis of pharmacological research methods used in clinical research. The course increases skills for critical evaluation of literature (scientific and commercial) about medicinal substances.

Additional information

EN:

Completion methods

2-4 h lectures

2 h x 8-12 seminar (one own seminar)

Preparation of the seminar and related documents

2 h material exam

Group work

Independent studies

The course consists of introductory lectures, student-prepared seminars and literature reports, and a discussion based on them. The topics are distributed in the first lecture. There is a written final exam for the course.

Assessment practices and criteria

Pass-fail

Target groups

Advanced studies course for the Master´s in Pharmacy and International Master´s in Pharmacy. The course is offered for anyone with sufficient prior pharmacology studies interested in clinical pharmacology. The course accepts approximately 30 students.

Teaching period when the course will be offered

Annually during spring term.

Recommended time or stage of studies for completion

Master´s in Pharmacy and International Master´s in Pharmacy: 1st year.

Language of instruction

English

EQF level

Master's / EQF level 7

Study materials

EN: T.M. Speight, N.H.G. Holford: Avery's Drug Treatment (newest edition).
PJ Neuvonen, J Backman, JJ Himberg, R Huupponen, T Keränen, K Kivistö. Kliininen farmakologia ja lääkehoito (uusin painos, soveltuvin osin). Kandidaattikustannus. (Finnish)

Completion method and assessment items	Recurrence	Credits
Method 1		5 cr
Participation in teaching		5 cr

GMB-305 Stem cells and organogenesis

GMB-305 Kantasolut ja elinten kehitys

GMB-305 Stamceller och organutveckling

Abbreviation: Kantasolut ja e

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	5 cr
Languages	English, Swedish, Finnish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Genetics and Molecular Biosciences 100%
Responsible persons	Marja Mikkola, Responsible teacher Claudius Kratochwil, Responsible teacher

Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Equivalences to other studies

529237 Stem cells and organogenesis

Completion method and assessment items	Recurrence	Credits
Method 1		5 cr
Participation in teaching		5 cr
Method 2		5 cr
Exam		5 cr
Method 3		5 cr
Independent study		5 cr

PSYM-542 Behavioural Genetics

PSYM-542 Käyttäytymisgenetiikka

PSYM-542 Beteendegenetik

Abbreviation: Käyttäytymisgen

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	5 cr
Languages	English, Finnish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Psychology 100%
Responsible person	Iiris Hovatta, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Social sciences

Prerequisites

EN: No background in genetics is needed beyond high school biology.

Learning outcomes

EN: After this course, the student:

- Has knowledge of the history and basic concepts of behavioral genetics.
- Is able to describe the basic types of DNA variation at chromosome and DNA levels, and how they affectbehavioral phenotypes.
- Recognizes and can describe the basic principles of methods in genetic epidemiology and modern genomicsused in behavioral genetics. These include e.g. family and twin studies, and methods to investigate thegenome sequence and association of sequence variation with behavioral phenotypes (DNA-sequencing andgenomewide association studies).
- Is able to describe gene-environment interactions and how they can be investigated with genetic andepigenetic methods.
- Can tell about the phenotypes behavioral genetics investigates, e.g. personality and personality disorders,cognitive abilities and disabilities, aging, health psychology, developmental and adult psychopathology,substance abuse.
- Is able to explain how animal models can be used in behavioral genetics.

- Through carrying out group work, is able to search, read and critically evaluate scientific literature on achosen topic, and present their work to other students.

Additional information

EN:

Completion methods

11 meetings (altogether approximately 16 hrs), 109 hours of groupwork, exercises, independent study, and an exam. The student must participate at least in nine out of 11 meetings.

Contents

This course is based on the biological basis of behaviour. The topics include:

1. History of behavioral genetics as a field.
2. Genome structure at the chromosome and DNA levels.
3. DNA variation and its consequences, including variant types (single nucleotide polymorphisms, microsatellites andcopy number variation) and extent of polymorphism between individuals.
4. Genetic epidemiology methods to investigate heritable basis of behavioral traits.
5. Molecular genetics methods toinvestigate the genome, including DNA and RNA sequencing.
6. Ways of manipulating the genome of model organismsto study biological mechanisms related to behavior.
7. Gene-environment interactions and epigenetics.
8. Genetic basis of behavioral traits and psychiatric phenotypes.

Assessment practices and criteria

The student

- participates in lectures and the exam
- completes course exercises
- completes the assignments related to groupwork
- studies independently

Study materials

EN: Course materials are given during lectures for independent study between lectures.

Completion method and assessment items	Recurrence	Credits
Method 1		5 cr
Participation in teaching		5 cr

PSYK-415 Neuroplasticity and learning mechanisms in health and disease

PSYK-415 Terveyteen ja sairauksiin liittyvä oppiminen ja neuroplastisuus

PSYK-415 Neuroplasticitet och inlärningsmekanismer vid hälsa och sjukdom

Abbreviation: Terveyteen ja s

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	5 cr
Languages	English
Grading scale	General scale, 0-5

University	University of Helsinki
Responsible organisation	Bachelor's Programme in Psychology 100%
Responsible person	Annette Horstmann, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Prerequisites

EN: Basic studies in psychology

Equivalences to other studies

477552 PSY413 Neuropsychology IVc

or

477175 PS413 Advances and applications of cognitive neuroscience 5 op

or

PSYK-413 Advances and applications of cognitive neuroscience

Learning outcomes

EN: After this course the student:

- will have knowledge of the history and will be able to explain the basic concepts of neuroplasticity and different types of learning.
- can recognise and classify the basic mechanisms of motor, sensory, and associative learning.
- can assess the importance of neuroplasticity for adaptive behaviour.
- be familiar with methods used to study neuroplasticity from cellular to systems level, e.g. electrophysiology, optogenetics, TMS, and fMRI.
- can distinguish between factors that positively or negatively affect neuroplasticity, e.g. development, life style
- be familiar with conditions of adaptive and maladaptive plasticity, e.g. expertise & skill acquisition, health behaviour, substance abuse, neurological and personality disorders, ageing, developmental and adult psychopathology.
- can estimate how neuroplasticity may be exploited for rehabilitation, e.g. after acquired brain damage or to treat depression.
- be able to search, read and critically evaluate scientific literature on a chosen topic, and present their work to other students.

Content

EN:

- History and basic concepts of neurogenesis and neural plasticity
- Motivation, Action, Choice: Neural and Behavioral Mechanisms
- Methods to study neuroplasticity
- Neural plasticity across the lifespan
- Hormones and brain plasticity
- Environmental influences
- Pharmacological modulation of learning and brain plasticity
- Cognitive plasticity in behavioural and neurologic disorders
- Neuroplasticity in rehabilitation

Additional information

EN:

Target group

The course is optional to students in the bachelor and master's programmes in psychology.

The course is organized by the discipline of psychology.

The course is part of advanced studies in psychology.

Timing

Second or third year of bachelor studies. Also suitable for master's level students and exchange students.

The course is organized as contact teaching.

Conduct

18 h contact teaching, 117 h independent study and work group and exam. The student must participate in at least 75 % of contact teaching.

Content

- History and basic concepts of neurogenesis and neural plasticity
- Motivation, Action, Choice: Neural and Behavioral Mechanisms
- Methods to study neuroplasticity
- Neural plasticity across the lifespan
- Hormones and brain plasticity
- Environmental influences
- Pharmacological modulation of learning and brain plasticity
- Cognitive plasticity in behavioural and neurologic disorders
- Neuroplasticity in rehabilitation

Activities and teaching methods

Contact teaching, supported independent study and group work.

Assessment

Grading is on scale 0-5 and is based on the exam (75%) and group work (25%).

Completion method and assessment items	Recurrence	Credits
Method 1		5 cr
Participation in teaching		5 cr

NEU-511 Systems and Cognitive Neuroscience

NEU-511 Systeeminen ja kognitiivinen neurotiede

NEU-511 Systemisk och kognitiv neurovetenskap

Abbreviation: Systeeminen ja

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	5 cr
Languages	English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Neuroscience 100%
Responsible persons	Juha Voipio, Responsible teacher Henna-Kaisa Wigren, Responsible teacher
Study level	Advanced studies

Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Tweet text

EN: This self-study e-course gives you a comprehensive introduction to the interdisciplinary field of systems and cognitive neuroscience

Prerequisites

EN: Successful studying of the course requires good basic knowledge in at least one of the following fields: neurobiology/neuroscience, psychology, cognitive science, neuroscience related biomedical engineering.

Learning outcomes

EN: The course provides a comprehensive introduction to the interdisciplinary field of systems and cognitive neuroscience and a good basis for further studies in the field. Students learn the rationale of research as well as experimental methods and approaches, concepts and theoretical frameworks that are common in the field. After successful completion of the course, students have gained knowledge and understanding in what follows:

- conceptual and theoretical frameworks of cognitive neuroscience
- cellular functions and neuroanatomy (basics needed to study the course)
- brain imaging and behavioral methods used for studying cognitive functions
- sensory systems processing of sensory information
- how emotions are enabled by the brain and imaged in cognitive research
- executive actions and control of behavior, and the underlying brain mechanisms
- basics of the neurophysiology of sleep
- processing of social information and neural systems involved in social interaction
- neural basis of language functions
- storing and processing information in memory

Content

EN: Course modules cover the following topics:

- What is systems and cognitive neuroscience?
- Principles of neuronal function and neuroanatomy: Neurons and glial cells, chemical and electrical signaling in the brain. Brain anatomy: major brain tracts, functional cortical areas, brain topology.
- Brain imaging methods: MEG, EEG, TMS, fMRI, DTI, NIRS, PET. Behavioral methods: experimental methods, questionnaire methods. Analysis and interpretation of data.
- Sensory systems: vision, hearing, tactile and proprioceptive senses, chemical senses.
- Selective processing of incoming information: attention; disorders of attention.
- Emotions in the brain; and how emotions are studied using neuroimaging methods.
- Storing and processing information in memory: types of memory, neural basis of memory, emotions and memory.
- Executive actions and control of behavior: Deficits in executive functions. Neural systems of reward, decision making, motor control, visual cues and the control of movement.
- Sleep: circadian rhythm, vigilance states, brain processes during sleep.
- Neuronal processes underlying social interaction and cooperation: face perception, social cues, social brain networks. Developmental disorder of social interaction.
- Brain and language. Music.

Additional information

EN:

Target groups

Students of the Master's Programme in Neuroscience, as well as MSc and doctoral students and exchange students who meet the prior knowledge requirements.

Completion methods

After enrolling to this self-study e-course, students gain access to the “Systems and cognitive neuroscience” Moodle site that is divided into modules. You will study materials of each module following the instructions given, and monitor your own learning using quizzes and module-specific tests. Each module forms a unit that is completed before you can continue to the next module. Completion of the whole course is based on the module-specific tests and a final exam.

Assessment practices and criteria

Passing the course and assessment are based on exams incorporated in the Moodle platform of the course and a separate final exam.

Activities and methods in support of learning

The available web-material consists of self-study-materials, including text, illustrations, videos, rehearsals, quizzes, etc.

Teaching period when the course will be offered

This is a self-study e-course, available throughout the year.

Recommended time or stage of studies for completion

Any time after completing the majority of compulsory courses in the Master's Programme in Neuroscience.

Language of instruction

English

EQF level:

7

Study materials

EN: All materials are in Moodle, and consist of various forms of self-study-materials, including text, illustrations, videos, rehearsals, quizzes, etc.

Completion method and assessment items	Recurrence	Credits
Method 1		5 cr
Independent study		5 cr
Method 2		5 cr
Open uni: Participation in teaching		5 cr
Method 3		5 cr
OU: Participation in teaching		5 cr
Method 4		5 cr
Independent study		5 cr

NEU-531 Developmental neuroscience

NEU-531 Hermoston kehitysbiologia

NEU-531 Nervsystemets utvecklingsbiologi

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	5 cr
Languages	English
Grading scale	General scale, 0-5
University	University of Helsinki

Responsible organisation	Master's Programme in Neuroscience 100%
Responsible person	Ulla Pirvola, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

EN: Recommended prerequisites: basic knowledge of neuroscience and developmental biology

Equivalences to other studies

920002 Developmental neuroscience

Learning outcomes

EN: After completing the study unit, student can explain the main concepts and events of development of the central and peripheral nervous system and sensory organs. Student can explain and apply current methods of developmental neuroscience research.

Content

EN: Lectures and group work of the course deal with: Neuronal induction and neurogenesis; Regulation of neuronal fate; Ionic regulation of neuronal development; Axonal outgrowth and regeneration; Synaptogenesis and synaptic plasticity; Development and refinement of neuronal circuits; Gliogenesis and myelinization; Neuronal migration; Neuronal cell death; Development of the peripheral nervous system; Development of sensory systems; Developmental brain disorders.

Additional information

EN:

Target group

Open to students of the Master’s Programme in Neuroscience and to master students of other degree programmes (biology, molecular biosciences, psychology, physics, biomedical engineering, medicine).

Timing

Period 3 / The course is taught annually

Completion methods

Participation in teaching (lectures, group work, final exam). The course includes compulsory face-to-face meetings and cannot be completed entirely by distance learning. Minimum of 80 % participation in lectures and group work.

Assessment practices and criteria

The exam is based on lectures and reading material indicated by lecturers. Final grading (scale 0-5) is based on the exam (80 %) and other activity during the course (20 %).

Responsible person

Ulla Pirvola

EQF level 7

Study materials

EN: Lecture material and other material assigned to the course in Moodle, including applicable parts of Kandel E. et al. Principles of Neuroscience and of Sanes D. et al., Development of the Nervous System.

Completion method and assessment items	Recurrence	Credits
Method 1		5 cr
Participation in teaching		5 cr

MED-MOOC85 Rethinking health

MED-MOOC85 Rethinking health

MED-MOOC85 Rethinking health

Curriculum period	2025-26
Validity period	since 1 Aug 2025
Credits	2 cr
Languages	English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Degree Programme in Medicine 100%
Responsible person	Paulus Torkki, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Equivalences to other studies

AYMED-TOU85aen Open uni: Rethinking health

Learning outcomes

EN: - The differing definitions of value-based care, from both a provider and a societal perspective
- Why value-based healthcare is relevant and needed for today’s healthcare challenges – and for those of tomorrow

- How value-based healthcare is being used in various countries around the world, with real-life examples

- The future of value-based healthcare and how it might be developed

Content

EN: The course introduces what value-based healthcare is. The results of the value-based healthcare are measured by the end-result of the care and the patient's quality of life.

Additional information

EN: Kohderyhmä
The course is open to anyone interested in the topics covered. The completed course can be included in degrees at the University of Helsinki. In addition, the skills acquired can be an asset in different professions. The course is offered as open university studies.
Students in the degree programme in medicine can complete the course as part of MED-TOU85 from their 3rd study year onwards.

Toteutus
Mooc course. Independently getting to know the course material and answering questions after each section. You can do the course in your own pace, but it is recommended to try to finish the course in 6 weeks.

Sisältö
The course introduces what value-based healthcare is. The results of the value-based healthcare are measured by the end-result of the care and the patient's quality of life.

Lisätiedot
Students who have completed the course as open access university studies may complete MED-OSA85 as part of their degree studies in medicine. MED-MOOC85 and MED-OSA85 combined are equivalent to MED-TOU85.

Arviointimenetelmät ja -kriteerit
Pass/fail

Vastuuhenkilöt ja yhteystiedot

Vastuuopettaja Paulus Torkki

Completion method and assessment items	Recurrence	Credits
Method 1		2 cr
Participation in teaching		2 cr

TMED-603 Pre-SPARK Health Concept Discovery Program

TMED-603 Pre-SPARK Health Concept Discovery Program

TMED-603 Pre-SPARK Health Concept Discovery Program

Curriculum period	2025-26
Validity period	since 1 Aug 2025
Credits	5 cr
Languages	English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	⚠ [information missing], Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Prerequisites

EN: Recommended prerequisites: Participants are selected based on interests and motivation in learning how to develop health-related concepts.

Equivalences to other studies

MPHARM-019 Pre-SPARK Health Concept Discovery Program

Learning outcomes

EN: Learning outcomes:
After completing the course, participants are expected to gain increased knowledge and capability in:

Defining and understanding clinical unmet need and defining target-product-profile

Defining intended purpose

Creating and refining initial concept

Building basic understanding of target customer, market and product-market-fit

Understanding and mapping out the competitive landscape

Recognizing and defining the uniqueness of the solution

Understanding the impact of regulatory, IPR, and IPR strategies in health innovation development

Understanding the pathway for concept development and exploring different tools involved in the process

Content

EN: Content: A 3-month program with weekly lecture sessions, hands-on workshop, and/or mentoring meetings. Please find more about the programme details from the course webpage: https://sparkfinland.fi/pre-spark-2025/.

Additional information

EN: Target group: TRANSMED students (10 seats), other Master's and PhD students involved and/or interested in health and life sciences research.
Timing: Autumn term. The course extends over two study periods. Find more about the programme specific schedule from the course webpage: https://sparkfinland.fi/pre-spark-2025/
The course is arranged in spring term with code MPHARM-019.

Recommended time or stage of studies for completion: Any time during Master's or Doctoral studies

Completion methods: Active participation in the programme lectures, workshops, mentoring events, independent work and group work, and completion of assignments.

Activities and teaching methods in support of learning: Workshop and mentoring-based learning and learning-by-doing.

Assessment practices and criteria: Attendance to lectures and mentoring sessions, active participation, and completion of assignments. Upon successfully finishing the program, participants from University of Helsinki, who have enrolled in the course on Sisu, will receive credits directly. Other participants can request a certificate of completion to support their credit registration.

Grading scale: Pass-Fail

Other information: All interested participants should apply to the program directly through Pre-SPARK webpage: https://sparkfinland.fi/pre-spark-2025/.

For participants from the University of Helsinki: After receiving confirmation of acceptance into the course (autumn term), please enrol in Sisu using the course code TMED-603 Pre-SPARK Health Concept Discovery Programme. Credits will be registered upon course completion. More detailed information will be provided in the acceptance email.

Study materials

EN: Study Materials: Materials to be shared during the program.

Completion method and assessment items	Recurrence	Credits
Method 1		5 cr
Participation in teaching		5 cr

TMED-604 Helsinki Pre-incubator and Terkko Health Hub Programmes

TMED-604 Helsinki Pre-incubator and Terkko Health Hub Programmes

TMED-604 Helsinki Pre-incubator and Terkko Health Hub Programmes

Curriculum periods	2024-25, 2025-26
Validity period	since 15 Apr 2025
Credits	1-5 cr
Languages	English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	Tiina Immonen, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Prerequisites

EN: As defined by the individual programmes.

Learning outcomes

EN: Student achieves a better understanding of the business world and know how to interface with it, and has gained insight if entrepreneurship is for them. If they so choose, they will be well-equipped to e.g. to continue further to an incubator programme.
In addition, students gain a basic understanding of valuable skills, such as:

· how to view things from a business perspective

· working as a team

· defining problems

· ideating solutions

· filling out a business model canvas

· determining market-fit

· basic financial planning

· presenting & crafting an engaging pitch

· domain-specific skills relevant to the programme's theme

Content

EN: Helsinki Pre-Incubator Programmes, like Pathways (5 cr) offer two months, low-barrier of entry spaces for teams and individuals who want to develop their basic entrepreneurial competences and take their first steps towards turning their ideas into action.
Terkko Start-up Deep Dive (1 cr) offers 1-month 24/7 access to Terkko Health Hub, where students can freely use co-working space, meeting rooms, etc. Students are invitated to Terkko Health Hub community events, including Community Get-Togethers, Investor Meetups, Terkko Workshops and Delegation Visits. Students also get access to networking with the startup members and the Research to Business projects, as well as wider life science innovation ecosystem in Finland and abroad.

Also other similar programmes or activities can be considered for crediting TMED-604.

Additional information

EN: Target group: TRANSMED students.
Timing: According to the timing of the individual courses and programmes.

Applying:

Registration is not open in SISU. You can apply for each programme following the programme's open call instructions.

Helsinki Pre-incubators https://www.helsinki.fi/en/networks/helsinki-incubators/pre-incubators

Terkko Health Hub https://terkko.fi/for-students/startup-deep-dive/

Completion methods:

Please request a certificate of attendance upon completion of the programme, and submit a substitution request of TMED-604 through Sisu.

Activities and teaching methods in support of learning: Workshop and mentoring based learning. Learning-by-doing.

Assessment practices and criteria: Attendance, active participation, and completion of required idea development steps.

Grading scale: Pass / Fail

Completion method and assessment items	Recurrence	Credits
Method 1		1 cr
Participation in teaching, 1 cr		1 cr
Method 2		5 cr
Participation in teaching, 5 cr		5 cr

TMED-601 HealthTech Linkage

TMED-601 HealthTech Linkage

TMED-601 HealthTech Linkage

Abbreviation: HTech

Curriculum periods	2024-25, 2025-26
Validity period	since 1 Aug 2024
Credits	10 cr
Languages	English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible person	⚠ [information missing], Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Tweet text

EN: A deep-dive into the HealthTech industry and work in a multidisciplinary team

Prerequisites

EN: The on-line course Rethinking Health MED-MOOC85 Rethinking Health, 2 cr, (studies.helsinki.fi) should be completed before the HealthTech Innovations course.

Learning outcomes

EN:

- To understand innovation and the commercialization of new innovations on HealthTech-related industries, such as health care services, medical device technologies, diagnostics, digital medicine, and digital health and well-being services
- To get to know companies and other organizations from HealthTech-related industries as well as individual representatives from these companies and organizations
- To understand and analyze real-life business problems in the HealthTech-related industries and to be able to provide viable, feasible and valuable solutions for these problems and to be able to defend the recommended solutions

Content

EN: The course offers a deep-dive into HealthTech-related industries and an opportunity to get to know and develop contacts with representatives from companies and other organizations. Students work in multidisciplinary teams to tackle innovation challenges with companies or organizations in the fields of health care services, medical device technologies, diagnostics, digital medicine, and digital health and well-being services. The teams will have industry mentors and students will take part in social activities and visits to companies. The course also includes a hackathon arranged during one weekend together with students from other Linkage courses.

Additional information

EN: Target group
Master's and PhD students from Aalto and Helsinki Universities. The course has limited intake and students are selected based on separate applications - see more in https://linkage.aalto.fiTiming
The course extends over two periods (Periods III and IV) and is conducted as contact teaching.

Teaching sessions are on Tuesdays 14-18. The optional visits can be on other dates, and the hackathon is during one weekend at the beginning of the course.

Completion methods: Participation in teaching. Participation in at least 80% of the sessions, active participation in group work, completion of all assignments and participation in the hackathon.

Activities in support of learning:

Lectures given by representatives from the industry, mentored innovation challenge group work, feedback from group presentations and home assignments.

Grading: pass-fail.

Responsible teacher

Jouni Lounasmaa, MBA

Study materials

EN: Materials provided during the course.

Completion method and assessment items	Recurrence	Credits
Method 1		10 cr
Participation in teaching		10 cr

TMED-602 BioMed Based Business

TMED-602 BioMed Based Business
TMED-602 BioMed Based Business

Abbreviation: BioMedB

Curriculum period	2025-26
Validity period	since 1 Aug 2025
Credits	3 cr
Languages	English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Master's Programme in Translational Medicine 100%
Responsible persons	⚠ [information missing], Responsible teacher Tiina Immonen, Administrative person
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Medical science

Learning outcomes

EN: After the course, each student will understand the backbone of basic business elements, such as product development, investment gathering, marketing strategy and IPR. They will also understand the basics of sales and finance. The students will become aware of the current industry standards and requirements for the job market as fresh graduates. Students will also learn and improve group working and general presentation skills for impactful business pitches.

Content

EN:

- Business strategy and decision making on biomedical/biotech/medtech innovations
- Innovation to commercialization process (Do's and Dont's as a scientist)
- Intellectual property rights and IPR strategy
- Support for innovations sprouting from within the University of Helsinki
- Fund raising strategy and company setup in Finland
- Local & global funding tool for startups.
- General business plan overview and content
- Competitive analysis & market analysis
- Basics of financial management
- Product development
- Group dynamics

Additional information

EN: Target group
1. Students of the Master's Programmes in Translational Medicine and students of the Master's Programme in Pharmaceutical Research, Development and Safety (8 seats) 2. MD exchange students 3. other master's students in Faculty of Pharmacy 4. other master's students.

Timing

Group 1 in Period I and Group 2 in period II.

Completion methods

- Participation in lectures (90% minimum)
- Individual and group work assignments with active Discussions (100%)
- Individual or group presentations (100%)
- Consultations (Upon the work group's need, lecturer will be available for 3 sessions 1h per work group)

Grading scale

Pass-Fail

Evaluation criteria

The quality of individual and group work assignment, active participation in all discussions, group dynamics and team spirit.

Activities and methods to support learning

Presentation, group work and feedback from teacher.

Teaching language

English

Responsible teacher

Darshan Kumar, PhD

Level

EFQ-7; Advanced studies

Study materials

EN: Presentations, Links and video recordings. They will be given after every lecture

Completion method and assessment items	Recurrence	Credits
Method 1		3 cr
Participation in teaching		3 cr

MPHARM-015 Introduction to pharmacoepidemiology and pharmacovigilance

MPHARM-015 Introduction to pharmacoepidemiology and pharmacovigilance

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	5 cr
Languages	English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Pharmaceutical Research, Development and Safety 100%
Responsible person	Anna-Riia Holmström, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Natural sciences

Prerequisites

EN: The course is advanced level, and it is recommended, that the student has previously started or completed the course: Introduction to medication safety and effectiveness research methods.

Learning outcomes

EN: After completing this course, the student will be able:

- To understand the concept of pharmacovigilance and its importance in risk management of pharmaceuticals
- To understand the international and national pharmacovigilance process and actors involved in risk management
- To understand the range of research methods applied in pharmacovigilance and the role of pharmaepidemiology in it
- To understand principles of pharmacoepidemiological research methods and their application to different research questions
- To apply the acquired knowledge to evaluate academic research on the area
- To self-reflect own learning outcomes and the applicability of those outcomes to work life and career goals

Content

EN: Course content
The course consists of two parts: 1) Introduction to pharmacoepidemiology and pharmacovigilance as scientific disciplines, and 2) Current research on pharmacoepidemiology and pharmacovigilance. The course comprises online lectures, seminars and journal-clubs, group work and self-study based on the literature provided in the course, and related written assignments.

Additional information

EN: Course completion methods
The course will be offered as an online course comprising self-directed learning and contact teaching. Attendance requirement for 75% of the teaching sessions indicated as obligatory in the course program. Methods of completion: Participation in multimodal teaching and completing learning assignments.

Assessment practices and criteria

The course is graded with the scale 0–5. The grade is based a written report produced and evaluated during the course.

Activities and methods in support of learning

Lectures, seminars, journal clubs and other multimodal teaching methods, including group work related to learning assignments.

Target groups

The course is optional for the students in the Master's Programme in Pharmaceutical Research, Development and Safety. Recommended to track 3 (Medication safety and effectiveness) students. Students from other degree programmes can participate upon availability.

Timing

Autumn term. The course is organized either every year or every second year.

Recommended time/stage of studies for completion

The recommended time for completing the course is in study year 2 (advanced level course).

EQF level

Master's / EQF level 7

Study materials

EN: The course reading material will be provided to the students during the course. The reading material comprises e.g., a selection of scientific publications, European Medicines Agency and US Food and Drug Administration regulatory resources related to pharmacovigilance, and the study book: Pharmacoepidemiology, 6th Edition. Strom BL, Kimmel SE, Sean Hennessy S (Editors). Wiley Online Books, 2019.

Completion method and assessment items	Recurrence	Credits
Method 1		5 cr
Participation in teaching		5 cr
Method 2		5 cr
Independent study		5 cr

PROV-214 Basics of Clinical Trial Research

PROV-214 Kliinisten lääketutkimusten perusteet

PROV-214 Grunderna i klinisk läkemedelsforskning

Abbreviation: Kliinisten lääk

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	5 cr
Languages	Finnish, Swedish, English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Pharmacy 100%
Responsible persons	Heli Bollström, Responsible teacher Anne Juppo, Responsible teacher
Study level	Intermediate studies

Study field	Fields of education (Ministry of Education and Culture), Health and welfare

Learning outcomes

EN: By the end of this study course, the student:

- is able to describe different phases, objectives, challenges and authorisation requirements in clinical trial research
- is able to describe ethical principles and ethical approvals involved in clinical trial research
- is able to understand research practicalities like blinding, randomisation etc. and is able to describe justification for these as well as reflection to study results
- is able to describe the documentation created and required during the research and justify the meaning of these
- is able to describe the steps of a clinical trial research and affecting factors for it
- manages the material logistics and requirements involved for study material (study product)
- understands future trends involved in clinical trial research both in national and international level
- is able to use in his/her work the vocabulary and terminology involved in clinical trial research
- is able to find the directives, laws, regulations and guidelines for clinical trial research and understands their significance, use and their relationship to each other

Content

EN: The study course consists of different phases of clinical research (Phase I-III(IV)), their characteristics and required documentation. Studies include authorisation requirements, clinical study objectives and use of study results. Additionally, studies include material logistics, requirements and management of study product as well as differences for varying study set ups. Among other things through different examples and exercises students gain competence of different steps of clinical trial research and factors involved. In addition, studies include vocabulary involved to clinical research.

Additional information

EN:

Completion methods

Accomplishment of the study course requires approved learning diary and learning assigment.

Assessment practices and criteria

Grading is done using scale 0-5.

Grading depends on the marks obtained from the learning diary and assigment.

Activities and methods in support of learning

Study module comprises Moodle learning environment.

Target group

Optional studies of master’s degree studies in pharmacy. The course is open also for doctoral students and other master’s degree students in University of Helsinki.

Recommended time or stage of studies for completion

Study course can be performed at any stage of the education. Study lecture course is arranged every third year. In other study years the course can be completed independently in Moodle in any time.

Language of instruction

Teaching language is English.

EQF level

Master's / EQF level 7

Study materials

EN: Study material is all material informed during the study course.

Completion method and assessment items	Recurrence	Credits
Method 1		5 cr
Independent study		5 cr
Method 2		5 cr
Participation in teaching		5 cr

PROV-910 Marketing authorisation for medicinal product and pharmacovigilance

PROV-910 Lääkevalmisteiden myyntilupa ja lääketurva

PROV-910 Försäljningstillstånd för läkemedelspreparat och farmakovigilans

Abbreviation: Lääkevalmisteid

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	5 cr
Languages	Finnish, Swedish, English
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Master's Programme in Pharmacy 100%
Responsible person	Mia Sivén, Responsible teacher
Study level	Advanced studies
Study field	Fields of education (Ministry of Education and Culture), Health and welfare

Prerequisites

EN: No requirements for courses or modules that must be completed before taking this course.

Equivalences to other studies

PROV-908 Marketing authorization of drug products

Learning outcomes

EN: After the course, students can describe the marketing authorisation procedures for medicinal products (national, recognition and centralised procedures), are familiarized with the regulations and guidelines for applying and maintaining a marketing authorisation, and can describe the information required in the marketing authorisation application. Students are familiarized with the basics of pharmacovigilance, such as its core concepts, functions and objectives.

Content

EN: The aim of the course is to familiarize students with the marketing authorisation procedures for medicinal products, the regulations and guidelines for applying and maintaining a marketing authorisation, and the information required in the marketing authorisation application. The course will familiarize with the basics of pharmacovigilance.

Additional information

EN:

Completion methods

Lectures, course assignments and final examination (Examinarium).

Assessment practices and criteria

The grading scale of the course is numerical 1-5.

Target Groups

Optional course, study track 3.) Medication safety & effectiveness

Recommended time or stage of studies for completion

The recommended time for completion is on the spring semester (first or second study year) (International Master's Programme in Pharmaceutical Research, Development and Safety).

EQF level

Master's / EQF level 7

Study materials

EN: Lecture material and relevant guidance documents.

Completion method and assessment items	Recurrence	Credits
Method 1		5 cr
Participation in teaching		5 cr
Method 2		5 cr
Exam		5 cr

KK-ENG501 Academic Writing 1: Principles and Practice (Master's Students) (CEFR C1)

KK-ENG501 Academic Writing 1: Principles and Practice (Master's Students) (CEFR C1)

KK-ENG501 Academic Writing 1: Principles and Practice (Master's Students) (CEFR C1)

Abbreviation: Academic Writing 1: Principles and Practice (Master's Students) (CEFR C1)

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	2 cr
Languages	English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Language Centre 100%
Responsible persons	Fergal Bradley, Responsible teacher Edie Furniss, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Humanities

Equivalences to other studies

993734 Academic Writing for Students in Master's Degree Programmes 1 (CEFR C1)

Equivalences (free text field)

EN:
KK-ENG501
Academic Writing 1: Principles and Practice (Master's Students) (CEFR C1)

Completion method and assessment items	Recurrence	Credits
Method 1		2 cr
Participation in teaching		2 cr
Method 2		2 cr
Exam		2 cr
Method 3		2 cr
Independent study		2 cr

KK-ENG502 Academic Writing 2: Process and Feedback (Master's Students) (CEFR C1)

KK-ENG502 Academic Writing 2: Process and Feedback (Master's Students) (CEFR C1)

KK-ENG502 Academic Writing 2: Process and Feedback (Master's Students) (CEFR C1)

Abbreviation: Academic Writing 2: Process and Feedback (Master's Students) (CEFR C1)

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	2 cr
Languages	English
Grading scale	Pass-Fail
University	University of Helsinki
Responsible organisation	Language Centre 100%
Responsible persons	Tuula Lehtonen, Responsible teacher Kari Pitkänen, Responsible teacher Roy Siddall, Responsible teacher Michele Simeon, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Humanities

Equivalences to other studies

993735 Academic Writing for Students in Master's Degree Programmes 2 (CEFR C1)

Equivalences (free text field)

EN:
KK-ENG502
Academic Writing 2: Process and Feedback (Master's Students) (CEFR C1)

Completion method and assessment items	Recurrence	Credits
Method 1		2 cr
Participation in teaching		2 cr
Method 2		2 cr
Exam		2 cr
Method 3		2 cr
Independent study		2 cr

SUO-111 Basic level Finnish 1A

SUO-111 Peruskielitaito 1A

SUO-111 Grundläggande språkfärdighet 1A

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	3 cr
Languages	Finnish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Bachelor's Programme in the Languages and Literatures of Finland 100%
Responsible persons	Niina Koskipää, Administrative person Leena Peniche Ferreira, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Humanities

Equivalences to other studies

FINN-111 Finnish 1A

or

FINN-114 Finnish beginners' course for exchange students

Learning outcomes

EN: · You can provide basic information about yourself, your family, and your friends, and you understand and can react when similar things are told to you.
· You can manage in Finnish in the most common service situations and in some frequently recurring social situations.

· You can ask your conversation partner to repeat and speak more slowly and tell them what language or languages you would like to be used.

· You know the key basics of Finnish phonetics and prosody, and you can pronounce Finnish in a way that your speech is fairly understandable.

· You understand short texts on everyday topics.

· You recognize the main differences between spoken and written language.

· You are familiar with the key basics of the background and language situation of the Finnish language.

· You know some of the key features of Finnish communication and etiquette culture.

· You know how you can also develop your own language skills outside the course.

Content

EN: · We study and guide language learning through authentic everyday interaction situations and utilizing very short texts that surround the learner in their daily life.
· We practice simple conversations and routine service situations.

· We practice how to demonstrate understanding and address comprehension issues.

· We familiarize ourselves with the pronunciation of the Finnish language from both the perspective of sounds and prosody, and we practice pronunciation.

· We study basic vocabulary for everyday life (e.g., greetings and introductions, numbers, expressions of time, food, studying, leisure, family).

• We introduce Finnish language basic structures and practice their use (e.g., vowel harmony, question and answer sentences).

• We familiarize ourselves with some key differences between spoken and written language.

• We become acquainted with the fundamental aspects of the background and language situation of the Finnish language.

• We explore the central features of Finnish communication and etiquette culture.

• We get to know self-assessment of our language skills and independent language skill development. We discuss language learning and related emotions.

Additional information

EN: Methods of Completion: Participation in instruction.
Assessment Methods and Criteria: The course is assessed on a scale of 0–5. Assessment is based on course assignments, tests, and participation during the course. The impact of partial accomplishments on the overall grade will be announced at the beginning of the course.

Attendance: Completing the course requires active participation in instruction.

Learning-Supporting Activities and Methods: Written and oral assignments and reflection on one's own learning.

Target Groups: Optional for all University of Helsinki students.

Study Modules: The course can be included in study modules SUO-100 and SUO-101.

Teaching Languages: The languages of instruction for the course are Finnish and English. The course is intended for students who have not previously studied Finnish.

Completion method and assessment items	Recurrence	Credits
Method 1		3 cr
Participation in teaching		3 cr
Method 2		3 cr
Exam		3 cr
Method 3		3 cr
Independent study		3 cr
Method 4		3 cr
Open uni: Participation in teaching		3 cr
Method 5		3 cr
OU: Participation in teaching		3 cr
Method 6		3 cr
Participation in teaching		3 cr

SUO-112 Basic level Finnish 1B

SUO-112 Peruskielitaito 1B

SUO-112 Grundläggande språkfärdighet 1B

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	2 cr
Languages	Finnish
Grading scale	General scale, 0-5
University	University of Helsinki

Responsible organisation	Bachelor's Programme in the Languages and Literatures of Finland 100%
Responsible persons	Niina Koskipää, Administrative person Leena Peniche Ferreira, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Humanities

Equivalences to other studies

FINN-112 Finnish 1B

Learning outcomes

EN: · You can talk about your daily life.
· You are able to engage in simple conversations with the support of a conversation partner.

· You can handle common, routine transactional situations and inquire about key information.

· You can pronounce Finnish in a way that your speech is fairly understandable. You have developed your own pronunciation.

· You can find essential information from short texts (e.g., announcements).

· You can describe everyday activities using basic verbs in appropriate forms. You also recognize past tense forms and can talk about the past using common verbs proficiently (e.g., I was/you were, I went/you went).

· You can express possession and use location expressions (where, from where, to where).

· You have a better understanding of the key aspects of Finnish communication and cultural norms.

· You have the ability to assess your own language skills and know how to develop them outside of the course.

Content

EN: · We study and guide language learning through authentic everyday interaction situations and by utilizing short texts that surround the learner in daily life.
· We practice simple conversations and routine transactional situations.

· We practice pronunciation, considering both phonemes and prosody.

· We learn basic vocabulary for everyday life (e.g., weather, daily routines, times of the day, leisure, expressions of time).

· We practice using and forming fundamental language structures. For example, we practice quantification, possession, verb conjugation, as well as expressing place and time.

· We practice assessing our own language skills and independently developing our language proficiency. We discuss language learning and the emotions associated with it.

Additional information

EN: Completion Methods: Participation in instruction.
Assessment Methods and Criteria: The course is graded on a scale of 0–5. Assessment is based on course assignments, tests, and participation during the course. The impact of sub-assignments on the overall grade will be provided at the beginning of the course.

Attendance: Completing the course requires active participation in instruction.

Supporting Activities and Methods for Learning: Written and oral assignments and reflection on one's own learning.

Target Groups: Optional for all University of Helsinki students.

Study Modules: The course can be included in study modules SUO-100 and SUO-101.

Languages of Instruction: The language of instruction for the course is Finnish. The course is intended for students whose proficiency in the Finnish language is at least approximately A1.1.

Completion method and assessment items	Recurrence	Credits
Method 1		2 cr
Participation in teaching		2 cr
Method 2		2 cr
Exam		2 cr
Method 3		2 cr
Independent study		2 cr
Method 4		2 cr
Open uni: Participation in teaching		2 cr
Method 5		2 cr
OU: Participation in teaching		2 cr
Method 6		2 cr
Participation in teaching		2 cr

SUO-121 Basic level Finnish 2A

SUO-121 Peruskielitaito 2A

SUO-121 Grundläggande språkfärdighet 2A

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	3 cr
Languages	Finnish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Bachelor's Programme in the Languages and Literatures of Finland 100%
Responsible persons	Niina Koskipää, Administrative person Leena Peniche Ferreira, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Humanities

Equivalences to other studies

FINN-221 Finnish 2A

Learning outcomes

EN: · You can describe your everyday life and a typical work or study day.
· You understand simple spoken language and can handle common everyday situations.

· You can distinguish whether events in text/speech are related to the present or the past.

· You can talk about past events.

· You can make suggestions and express your opinion in a simple manner.

· You can pronounce Finnish so that your speech is fairly understandable. You have developed your own pronunciation.

· You understand and can write short messages related to work or study day situations.

· You are familiar with typical features of Finnish everyday life and leisure activities.

· You are acquainted with various ways of using multiple languages in communication.

· You can assess your own language skills and know how to develop your competence outside the course as well.

Content

EN: · We study and guide learning the language through authentic everyday interaction situations and utilizing short texts that surround the learner in daily life.
· We practice simple social situations and transactional conversations.

· We practice pronunciation from both the perspective of phonemes and prosody.

· We practice simple ways of expressing opinions on everyday matters.

· We learn basic vocabulary for everyday life (e.g., food, celebrations, work, study, dining out, travel).

· We further practice quantification and explore other uses of nouns, distinguishing between subject and object, producing narratives in the past tense, understanding negative statements in the past tense, making suggestions, and using informal "we" language (e.g., using "mennään" structure).

· We practice self-assessment of language skills and independent language development. We discuss language learning, associated emotions and attitudes, and the concurrent use of different languages in communication.

Additional information

EN: Completion Methods: Attendance in classes.
Assessment Methods and Criteria: The course is evaluated on a scale of 0 to 5. Assessment is based on course assignments, tests, and participation during the course. The impact of partial achievements on the overall grade is announced at the beginning of the course.

Attendance: Completing the course requires active participation in classes.

Learning-supporting Activities and Methods: Written and oral assignments, as well as reflecting on one's own learning.

Target Audience: Optional for all University of Helsinki students.

Study Modules: The course can be included in study modules SUO-100 and SUO-101.

Languages of Instruction: The language of instruction for the course is Finnish. The course is intended for students whose proficiency in the Finnish language is at least approximately A1.2.

Completion method and assessment items	Recurrence	Credits
Method 1		3 cr
Participation in teaching		3 cr
Method 2		3 cr
Exam		3 cr
Method 3		3 cr
Independent study		3 cr
Method 4		3 cr
Open uni: Participation in teaching		3 cr
Method 5		3 cr
OU: Participation in teaching		3 cr
Method 6		3 cr
Participation in teaching		3 cr

SUO-122 Basic level Finnish 2B

SUO-122 Peruskielitaito 2B

SUO-122 Grundläggande språkfärdighet 2B

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	2 cr
Languages	Finnish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Bachelor's Programme in the Languages and Literatures of Finland 100%
Responsible persons	Niina Koskipää, Administrative person Taija Udd, Responsible teacher Emmi Pollari, Responsible teacher Leena Peniche Ferreira, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Humanities

Equivalences to other studies

FINN-222 Finnish 2B

Learning outcomes

EN: You are able to participate in various social situations and everyday conversations.
You can seek the information you need about topics related to the course (e.g., recreational opportunities) from different sources.

You can pronounce Finnish in a way that your speech is fairly understandable. You have developed your own pronunciation.

You can describe your state of health.

You can discuss leisure time and hobbies.

You can narrate past events both positively and negatively.

You can express necessity, obligation, and possibility.

You can recognize the plural forms of nouns in texts.

You are familiar with Finnish everyday life and leisure activities.

You can assess your own language skills and know how to develop your competence outside of the course.
You can reflect on feelings and attitudes related to language learning and language proficiency.

Content

EN: · We study and guide language learning through authentic everyday interaction situations and the surrounding textual environment.
· We practice simple social conversations and practical situations, enhancing fluency in speech.

· We practice pronunciation considering both individual sounds and prosody.

· We learn more basic vocabulary for everyday life (e.g., health and illness, leisure time and hobbies).

· We study the recognition, formation, and usage of basic language structures (e.g., describing the past positively and negatively, expressing necessity and possibility).

· We discuss leisure activities and everyday life in Finland.

· We continue practicing self-assessment of our language skills and independent language skill development. We discuss language learning and the associated emotions and attitudes.

Additional information

EN: Completion methods: Participation in instruction.
Assessment Methods and Criteria: The course is assessed on a scale of 0 to 5.

Assessment is based on course assignments, tests, and participation during the course. The impact of subtasks on the overall grade will be announced at the beginning of the course.

Attendance: Completing the course requires active participation in the instruction.

Learning Support Activities and Methods: Written and oral assignments and reflection on one's own learning.

Target Groups: Elective for all University of Helsinki students.

Study Modules: The course can be included in the study modules SUO-100 and SUO-101.

Languages of Instruction: The language of instruction for the course is Finnish.

The course is aimed at students whose proficiency in the Finnish language is at least approximately A1.3.

Completion method and assessment items	Recurrence	Credits
Method 1		2 cr
Participation in teaching		2 cr
Method 2		2 cr
Exam		2 cr
Method 3		2 cr
Independent study		2 cr
Method 4		2 cr
Open uni: Participation in teaching		2 cr
Method 5		2 cr
OU: Participation in teaching		2 cr
Method 6		2 cr
Participation in teaching		2 cr

SUO-131 Basic level Finnish 3A

SUO-131 Peruskielitaito 3A

SUO-131 Grundläggande språkfärdighet 3A

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	3 cr
Languages	Finnish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Bachelor's Programme in the Languages and Literatures of Finland 100%
Responsible persons	Niina Koskipää, Administrative person Leena Peniche Ferreira, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Humanities

Completion method and assessment items	Recurrence	Credits
Method 1		3 cr
Participation in teaching		3 cr
Method 2		3 cr
Exam		3 cr
Method 3		3 cr
Independent study		3 cr
Method 4		3 cr
Open uni: Participation in teaching		3 cr
Method 5		3 cr
OU: Participation in teaching		3 cr
Method 6		3 cr
Participation in teaching		3 cr

SUO-130 Basic level Finnish 3

SUO-130 Peruskielitaito 3

SUO-130 Grundläggande språkfärdighet 3

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	5 cr
Languages	Finnish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Bachelor's Programme in the Languages and Literatures of Finland 100%
Responsible persons	Niina Koskipää, Administrative person Leena Peniche Ferreira, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Humanities

Equivalences to other studies

FINN-231 Finnish 3

Learning outcomes

EN:

- You handle various everyday communication situations quite well.
- You understand texts that use different tenses and can describe past events using different tenses.
- You can talk about your education and work history as well as possible career plans.
- You're able to read and write short, simple texts related to the topics of the course.
- You can engage in conversations and express your opinions on topics related to the course.
- You recognize plural forms of nouns in texts and speech and can use them to some extent.
- You understand speech and text discussing conditional events. You can politely make requests and talk about conditional events.
- You understand the use of passive voice in texts and speech. You can also make suggestions using "mennään" (let's go) type structures and use informal plural 1st person "me opiskellaan, me tehdään".
- You can negotiate the languages used in communication and inform your conversation partner about factors that enhance your understanding.
- You can pronounce Finnish fairly accurately, and your speech is not often misunderstood due to pronunciation.

- You're familiar with Finnish holidays and customs and can talk about your own cultural celebrations and practices.
- You can assess your own language skills and know how to develop your skills outside of the course. You can reflect on emotions and attitudes related to language learning and language proficiency.

Content

EN: · We study and guide language learning by utilizing authentic everyday interaction situations and the surrounding textual world.
· We practice fluency in spoken expression both in casual conversations and formal transactional situations.

· We practice discussing course topics (e.g., personal past and future, education and work life, and culture and holidays) and expand vocabulary related to the course themes.

· We read short factual texts and practice writing simple factual texts.

· We examine the differences between spoken and written language as well as different language usage registers. For instance, we practice using the informal 'we' form in speech and making polite requests.

· We study the formation and usage of fundamental language structures. We explore the Finnish tense system as a whole and practice speaking about the past and present. We practice expressing plurality in different cases. We delve into texts discussing conditional events and practice expressing conditionality. We also broaden our understanding of personal expression, including passive voice and zero person.

· We practice functioning in multilingual communication situations.

· We analyze factors that facilitate or complicate comprehension. We enhance cultural awareness (festivals and customs) and expand vocabulary related to the topic.

· We practice evaluating our own language skills and independently developing them. We discuss language learning and the emotions it evokes.

Additional information

EN: Methods of Completion: Participation in instruction.
Assessment Methods and Criteria: The course is graded on a scale of 0-5. Assessment is based on course assignments, tests, and participation during the course. The impact of sub-assignments on the overall grade will be provided at the beginning of the course.

Attendance: Completing the course requires active participation in instruction.

Supporting Activities and Methods for Learning: Written and oral assignments and reflection on one's own learning.

Target Groups: Optional for all University of Helsinki students.

Study Module: The course can be included in study modules SUO-100 or SUO-101.

Languages of Instruction: The language of instruction for the course is Finnish. The course is intended for students whose proficiency in the Finnish language is at least approximately A2.1.

Completion method and assessment items	Recurrence	Credits
Method 1		5 cr
Participation in teaching		5 cr
Method 2		5 cr
Exam		5 cr
Method 3		5 cr
Independent study		5 cr
Method 4		5 cr
Open uni: Participation in teaching		5 cr
Method 5		5 cr

OU: Participation in teaching 5 cr
Method 6 5 cr
Participation in teaching 5 cr

SUO-115 Intensive Finnish 1

SUO-115 Suomea intensiivisesti 1

Abbreviation: SUO-115

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	8 cr
Languages	Finnish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Bachelor's Programme in the Languages and Literatures of Finland 100%
Responsible person	Leena Peniche Ferreira, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Humanities

Equivalences to other studies

FINN-115 Intensive Finnish for beginners (Finnish 1A+1B+2A)

Learning outcomes

EN: · You are able introduce yourself, your family, and your friends.
· You know how to describe your typical day, talk about your studies or work life, and you know how to respond when you are being spoken to about similar topics.

· You understand simple spoken language and can make common transactions.

· You know how to operate in most common social situations and ask about topics that interest you.

· You can participate in simple discussions with a help of another Finnish speaker.

· You can observe from text and speech whether the topics are about current moment or about past, as well as you know how to narrate future, current and past events.

· You know how to express ownership and use expressions that indicate location (where, where from, where to).

· You know how to suggest, and how to express your opinion in simple way.

· You are able to ask for repetition in discussions, as well as ask others to speak slower, and tell which language or languages you would like to use in discussion.

· You know key aspects of Finnish pronunciation, and are able to pronounce Finnish quite understandably. You have improved your pronunciation.

· You are able to write and understand short texts about every day life topics, as well as simple texts related to work or studies.

· You recognize the key differences between written and spoken language.

· You are aware of fundamental aspects of the Finnish language background, language situation, and key features of Finnish communication and etiquette culture.

· You recognize typical aspects of Finnish everyday life and free-time activities.

· You know how to use two or more languages beside each other in communication.

• You know how to reflect your own language skills and know how to continue developing your language skills outside of the course.

Content

EN: • Observating and learning language in real life communication situations, as well as looking into short texts about these situations.
• Practicing simple discussions, social situations and routine transactions.

• Practicing on how to express that you have understood what is being said, as well as how to tell if you have problems with understanding.

• Getting to know and practicing Finnish pronunciation, both from phones and pronunciations viewpoint.

• Studying everyday life vocabulary (e.g., greetings, getting to know one another, numbers, food, study life, free time, family, weather, daily routines, clock, time expressions, food, festivities, work life, going to restaurant, travelling).

• Getting to know key structures of Finnish and practicing how to use them (e.g., vowel harmony, declaration and question sentences, possession, verb conjugation, expressing time and location, quantification and using material nouns, and recognizing subject and object.

• Practicing to narrate stories in past tense and understanding past tense negative clauses. Practicing suggestions and spoken language me-persona.

• Practicing simple way to express opinion about everyday life matters.

• Understanding key differences between written and spoken language.

• Acknowledging key features of Finnish language background and language situation.

• Understanding key features of Finnish communication and etiquette culture.

• Practicing reflecting students' language skills and knowing how to continue developing language skills outside of the course. Discussions about language learning and feelings and attitudes attached to it, as well as how to use different languages beside each other in communication.

Additional information

EN: Target Groups: University of Helsinki international degree students.
Timing: Course is held every academic year.

Attendance: Completing the course requires active participation. Further information will be announced at the beginning of the course.

Assessment Methods: The course is assessed on a scale of 0–5.

Assessment is based on course assignments, tests, and participation during the course. The impact of partial accomplishments on the overall grade will be announced at the beginning of the course.

Methods of Completion: Participation in instruction.

Prerequisites: Course is intended for students who have not previously studied Finnish.

Study materials: Information about study materials will be given on course page before course starts.

Learning-Supporting Activities and Methods: Written and oral assignments during the course and reflection on your own learning.

Study Module: The course can be included in the study module SUO-100 Basic Language Proficiency or SUO-101 Basic Language Proficiency (narrow module).

Teaching Languages: Languages of instruction are Finnish and English.

Completion method and assessment items	Recurrence	Credits
Method 1		8 cr
Participation in teaching		8 cr

SUO-125 Intensive Finnish 2

SUO-125 Suomea intensiivisesti 2

Abbreviation: SUO-125

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	7 cr
Languages	Finnish
Grading scale	General scale, 0-5
University	University of Helsinki
Responsible organisation	Bachelor's Programme in the Languages and Literatures of Finland 100%
Responsible person	Leena Peniche Ferreira, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Humanities

Equivalences to other studies

FINN-225 Intensive Finnish continuation course (Finnish 2B+3)

Learning outcomes

EN: · You can operate relatively well in everyday social interactions.
· You know how to get more information about course topics (e.g., hobbies), from different sources.

· You are able to read and write short, simple texts about the course topics.

· You can pronounce Finnish rather precisely and when speaking, you are understood most of the time.

· You can describe your health.

· You are able to discuss free time activities and hobbies.

· You can discuss course topics, as well as express opinions about them.

· You understand texts with different tenses and know how to narrate past events, using different tenses.

· You are able to describe your study and work history, as well as possible work plans.

· You know how to express necessity and possibility.

· You recognize plural noun forms from text and speech, and you know moderately how to use these forms, too.

· You understand conditional events in speech and in text. You can request politely and narrate conditional events.

· You understand passive form in texts and in speech. You can suggest events (with mennään- type of structures) and you know how to use spoken language me-persona.

· You are familiar with Finnish every day life and free-time activities, as well as Finnish festivities, and be able to describe your own cultural background.

· You know how to reflect your own language skills and know how to continue developing your language skills outside of the course. You can envision feelings and attitudes attached to language learning and language skills.

• You can negotiate over the languages used in communication and tell your conversational partner what sort of acts will promote your understanding.

Content

EN: • Practicing discussions in different social situations and in transactions, and developing verbal expressions in both everyday life situations as well as more formal situations.
• Practicing discussions about course topics (e.g., health and sickness, past and future events in individuals' life, free time and hobbies, studies and work life, culture and festivities), and expanding the vocabulary about these themes.

• Reading short formal texts and practicing how to write such texts.

• Examining differences between spoken and written language and different language registers. For example, practicing spoken language me-persona and polite requests.

• Practicing Finnish pronunciation, both from phones and pronunciations viewpoint.

• Recognizing, forming and using basic structures of Finnish language. Getting to know Finnish tense system as a whole and practicing speaking about past and current events. Practicing plural noun forms in different cases. Practicing expressing different levels of necessity. Reading texts about conditional events and practicing narrating conditional events. Familiarizing how persona can be indicated in Finnish (passive and zero-person structure, among others).

• Practicing reflecting students' language skills and knowing how to continue developing language skills outside of the course. Discussions about language learning and feelings and attitudes attached to it, as well as how to use different languages beside each other in communication.

• Practicing how to operate in multi-lingual interactions.

• Analyzing matters that can promote or hinder understanding.

• Expanding cultural knowledge (e.g., festivities and customs).

Additional information

EN: Target Groups: University of Helsinki international degree students.
Timing: Course is held every academic year.

Attendance: Completing the course requires active participation. Further information will be announced at the beginning of the course.

Assessment Methods: The course is assessed on a scale of 0–5.

Assessment is based on course assignments, tests, and participation during the course. The impact of partial accomplishments on the overall grade will be announced at the beginning of the course.

Methods of Completion: Participation in instruction.

Prerequisites: The study unit is intended for students whose proficiency in the Finnish language is at least A1.2.

Study materials: Information about study materials will be given on course page before course starts.

Learning-Supporting Activities and Methods: Written and oral assignments during the course and reflection on students own learning.

Study Module: The course can be included in the study module SUO-100 Basic Language Proficiency or SUO-101 Basic Language Proficiency (narrow module).

Teaching Languages: The language of instruction is Finnish.

Completion method and assessment items	Recurrence	Credits
Method 1		7 cr

Participation in teaching 7 cr

KK-FINSK Written Skills in the Second National Language, Finnish (CEFR B1)

KK-FINSK Toisen kotimaisen kielen kirjallinen taito, suomi (CEFR B1)
KK-FINSK Skriftlig färdighet i det andra inhemska språket, finska (CEFR B1)

Abbreviation: Toisen kotimais

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	1 cr
Languages	Finnish
Grading scale	Second national language
University	University of Helsinki
Responsible organisation	Language Centre 100%
Responsible person	Hanna Vänskä, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Humanities

Equivalences to other studies

992922 Written Skills in the Second Official Language, Finnish

or

AYKK-FINSK Open uni: Written Skills in the Second National Language, Finnish (CEFR B1)

or

KK-FIHYK Written Skills in the Second National Language (Finnish) included in a previous degree at the University of Helsinki

Completion method and assessment items Recurrence	Credits
Method 1	1 cr
Participation in teaching	1 cr
Method 2	1 cr
Exam	1 cr
Method 3	1 cr
Independent study	1 cr
Method 4	1 cr
Open uni: Participation in teaching	1 cr
Method 5	1 cr
OU: Participation in teaching	1 cr
Method 6	1 cr
Independent study	1 cr

KK-FINMU Oral Skills in the Second National Language, Finnish (CEFR B1)

KK-FINMU Toisen kotimaisen kielen suullinen taito, suomi (CEFR B1)
KK-FINMU Muntlig färdighet i det andra inhemska språket, finska (CEFR B1)

Abbreviation: Toisen kotimais

Curriculum periods	2023-24, 2024-25, 2025-26

Validity period	since 1 Aug 2023
Credits	2 cr
Languages	Finnish
Grading scale	Second national language
University	University of Helsinki
Responsible organisation	Language Centre 100%
Responsible person	Hanna Vänskä, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Humanities

Equivalences to other studies

992921 Oral Skills in the Second Official Language, Finnish

or

AYKK-FINMU Open uni: Oral Skills in the Second National Language, Finnish (CEFR B1)

or

KK-FIHYS Oral Skills in the Second National Language (Finnish) included in a previous degree at the University of Helsinki

Completion method and assessment items Recurrence	Credits
Method 1	2 cr
Participation in teaching	2 cr
Method 2	2 cr
Exam	2 cr
Method 3	2 cr
Independent study	2 cr
Method 4	2 cr
Open uni: Participation in teaching	2 cr
Method 5	2 cr
OU: Participation in teaching	2 cr
Method 6	2 cr
Independent study	2 cr

KK-RUERI Oral Skills in the Second National Language, Swedish (CEFR B1)

KK-RUERI Toisen kotimaisen kielen suullinen taito, ruotsi (CEFR B1)

KK-RUERI Muntlig färdighet i andra inhemska språket, svenska (CEFR B1)

Abbreviation: Toisen kotimais

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	2 cr
Languages	Swedish
Grading scale	Second national language
University	University of Helsinki
Responsible organisation	Language Centre 100%
Responsible person	Carola Rewell-Heikkinen, Responsible teacher
Study level	Other studies

Study field Fields of education (Ministry of Education and Culture), Humanities

Equivalences to other studies

KK-RUBIYM Oral Skills in the Second National Language, Swedish (CEFR B1)

or

KK-RUFARM Oral Skills in the Second National Language, Swedish (CEFR B1)

or

KK-RUHUM Oral Skills in the Second National Language, Swedish (CEFR B1)

or

KK-RULAAK Oral Skills in the Second National Language, Swedish (CEFR B1)

or

KK-RUMAME Oral Skills in the Second National Language, Swedish (CEFR B1)

or

KK-RUMALU Oral Skills in the Second National Language, Swedish (CEFR B1)

or

KK-RUOIK Oral Skills in the Second National Language, Swedish (CEFR B1)

or

KK-RUTEOL Oral Skills in the Second National Language, Swedish (CEFR B1)

or

KK-RUVALT Oral Skills in the Second National Language, Swedish (CEFR B1)

or

KK-RUELK Oral Skills in the Second National Language, Swedish (CEFR B1)

or

KK-RUKASV Oral Skills in the Second National Language, Swedish (CEFR B1)

or

KK-RULAAK1 Oral Skills in the Second National Language, Swedish (CEFR B1)

or

KK-RUKAIKKI Oral Skills in the Second National Language, Swedish (CEFR B1)

Completion method and assessment items	Recurrence	Credits
Method 1		2 cr
Participation in teaching		2 cr
Method 2		2 cr
Exam		2 cr
Method 3		2 cr
Independent study		2 cr

KK-RUKIRJ Written Skills in the Second National Language, Swedish (CEFR B1)

KK-RUKIRJ Toisen kotimaisen kielen kirjallinen taito, ruotsi (CEFR B1)

KK-RUKIRJ Skriftlig färdighet i andra inhemska språket, svenska (CEFR B1)

Abbreviation: Toisen kotimais

Curriculum periods	2023-24, 2024-25, 2025-26
Validity period	since 1 Aug 2023
Credits	1 cr
Languages	Swedish
Grading scale	Second national language
University	University of Helsinki
Responsible organisation	Language Centre 100%
Responsible persons	Johanna Manner-Kivipuro, Responsible teacher Carola Rewell-Heikkinen, Responsible teacher
Study level	Other studies
Study field	Fields of education (Ministry of Education and Culture), Humanities

Equivalences to other studies

992912 Written Skills in the Second Official Language, Swedish

or

A992912 Open uni: Written Skills in the Second Official Language, Swedish

or

AYKK-RUKIRJ Open uni: Written Skills in the Second National Language, Swedish (CEFR B1)

or

KK-RULAAK2 Written Skills in the Second National Language, Swedish (CEFR B1)

or

KK-RUHYK Written Skills in the Second National Language (Swedish) included in a previous degree at the University of Helsinki

Completion method and assessment items	Recurrence	Credits
Method 1		1 cr
Participation in teaching		1 cr
Method 2		1 cr
Exam		1 cr
Method 3		1 cr
Independent study		1 cr
Method 4		1 cr
Open uni: Participation in teaching		1 cr
Method 5		1 cr
OU: Participation in teaching		1 cr