Course syllabus for

Frontiers in Translational Medicine, 22 credits

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This course has been cancelled, for further information see Transitional provisions in the last version of the syllabus.

Please note that the course syllabus is available in the following versions:
Autumn2011 , Autumn2012 , Autumn2013 , Autumn2014 , Autumn2015 , Autumn2016 , Autumn2017 , Autumn2018 , Autumn2019 , Autumn2020

Course code	4BI080
Course name	Frontiers in Translational Medicine
Credits	22 credits
Form of Education	Higher Education, study regulation 2007
Main field of study	Biomedicine
Level	AV - Second cycle
Grading scale	Pass with distinction, Pass, Fail
Department	Department of Medicine, Solna
Participating institutions	• Department of Microbiology, Tumor and Cell Biology • Department of Neuroscience • Department of Neurobiology, Care Sciences and Society • Department of Biosciences and Nutrition • Department of Oncology-Pathology • Department of Clinical Neuroscience
Decided by	Programnämnd 7
Decision date	2011-05-10
Revised by	Programnämnd 7
Last revision	2012-03-30
Course syllabus valid from	Autumn 2012

Specific entry requirements

Bachelors degree or professional qualification worth at least 180 credits in biomedicine, biotechnology, cellular and molecular biology or medicine. In addition, knowledge of English equivalent to English B (with a minimum Pass) are required.

Objectives

The aims of the course are that the student should understand the connection between how changes at

molecular level can influence basic functions in individual cells and/or organs in relation to all man; special focus is placed on changes from sound to diseased tissue and connection to symptoms, diagnosis and treatment of different diseases.

On completion of the course, the student should be able to:

Knowledge and understanding
- account for basic functions and mechanisms at the molecular level in individual cells or in organs and put it in relation to all man.
- apply this knowledge on processes such as disease development, diagnosis and treatment.

Skills and ability
- account for the use of the most important methods in molecular medicine.
- evaluate research data and suggest set-up of scholarly studies.
- within a research team be able to participate actively in project planning (design of study) and implementation.
- present results of a research project orally and in writing.
- be able to find relevant original-, review- and course litterature regarding issues around biomedicine, and from these bring information for problem-solving, experimental design and for compilations.
- in the format of journal clubs be able to present and discuss scholarly articles actively.

Assessment ability and attitudes
- take responsibility for his/her own learning.
- show an ethical, critical and scholarly attitude to research data and scholarly presentations.

Content

The main theme is translational medicine -”from molecule to patient and from patient to molecule”. How cellular and molecular biological knowledge is applied for an understanding of different diseases and for design of new treatments or diagnostics will constitute the basis for all parts of the course, see below. The course particularly focuses on cancer, infectious diseases, cardiovascular diseases and the diseases of the nervous system. Inflammation is brought up as a sub-theme regarding all these diseases. Cell biology-related processes such as cell-cell interactions, intracellular signalling and cell death are covered. Technologies used within advanced translational research, such as relevant cellular and molecular biological technologies, biobanks and the methodology of the –omics are reviewed.

The course is divided into the following parts:
• Part 1. Advanced biomedicine within inflammation/autoimmunity, including experimental methodology. 4 credits
• Part 2. Advanced biomedicine within neurological diseases as well as cancer and infection including experimental methodology. 6 credits
• Part 3. Group seminars/laborations/demonstreations, 4 credits
• Part 4. Journal club. In depth studies of scientific articlesperformed in smaller groups, with special emphasis on individual preparatory work. This part of the course integrates ability to prepare oral presentations as well as taking part in analytical discussions in a smaller group, 8 credits

Advanced biomedicine within inflammation/autoimmunity, in.., 4.0 hp

Grading scale: VU

Advanced biomedicine within neurological diseases as well..., 6.0 hp

Grading scale: VU

Group seminars/laborations/demonstreations, 4.0 hp

Grading scale: GU

Journal club, 8.0 hp

Grading scale: GU

Teaching methods

The course is a course at the master's level, where the students are assumed to be familiar with the most common study methods in higher education. The fundamental pedagogical view is based on learning as an active research process. The teaching is given as group tuition, expert lectures, studies of scholarly work, journal clubs and laboratory sessions. In-depth studys in groups with an emphasis on own work and literature studies.

Examination

The course has two written exams.
Part 1. Examined through a written examination that is graded with the three grade grading scale Fail/Pass/Pass with distinction.
Part 2. Examined through a written examination that is graded with the three grade grading scale Fail/Pass/Pass with distinction.
Part 3 Examined through active participation in group seminars, and is graded with Fail/Pass.
Part 4. Examined through presentation of scientific articles in journal clubs and are graded with Fail/Pass.

The course grade is based on results on the two written examinations in part 1 and part 2. To pass the course it is also requires the grade Pass on part 3 and 4. The grading scale is criterion-referenced and goes from VG/G/U. Grading criteria are announced at the beginning of the course.

Compulsory participation
The introduction to the course, seminars, group assignments and demonstrations as well as presentations and lectures linked to these parts are compulsory. The course director assesses if and, in that case, how absence can be compensated. Before the student has participated in all compulsory parts or compensated absence in accordance with the course director's instructions, the student's results for respective part will not be registered in LADOK.

Limitations of the number of examinations or practical training sessions
Students who have not passed the regular examination are entitled to participate in five more examinations. If the student is not approved after four examinations, he/she is recommend to retake the course at the next regular course date, and may, after that, participate in two more examinations. If the student has failed six examinations/tests, no additional examination or new admission is provided.

The number of times that the student has participated in one and the same examination is regarded as an examination session. Submission of a blank examination is regarded as an examination. An examination for which the student registered but not participated in, will not be counted as an examination.

Transitional provisions

After each course, there will be at least 4 occasions for examination within a 2-year period after the end of the course.

Other directives

Course evaluation will be carried out in accordance with the guidelines established by the Board of Higher Education. Course council meeting is held with the course coordinator and student representatives.

The teaching and examination takes place in English.

Literature and other teaching aids

Medical physiology : principles for clinical medicine
Rhoades, Rodney; Bell, David R.

3. ed. : Philadelphia : Lippincott Williams & Wilkins, cop. 2009 - 816 s.
ISBN:978-0-7817-6852-8 LIBRIS-ID:10702457
Library search

Murray, Patrick R.; Rosenthal, Kenneth S.0 319233; Pfaller, Michael A.
Medical microbiology

6. ed. : Philadelphia : Mosby/Elsevier, cop. 2009 - x, 947 s.
ISBN:0-323-05470-6 LIBRIS-ID:11179944
Library search

Neuroscience
Purves, Dale

4th ed. : Sunderland, Mass. : Sinauer, cop. 2008 - 857 s. + (52 s.)
ISBN:978-0-87893-697-7 LIBRIS-ID:10531974
Library search

Weinberg, Robert A.
The biology of cancer

New York ;a London : Taylor & Francis, cop. 2007 - xix, 796, 4, 20, 24 s.
ISBN:0-8153-4076-1 LIBRIS-ID:10202722
Library search

Vander's Human Physiology : the mechanisms of body function
Widmaier, Eric P.; Raff, Hershel; Strang, Kevin T.; Vander, Arthur J.

11. ed. : Boston : McGraw-Hill Education, c2008 - xxviii, 770 p.
ISBN:978-0-07-128366-3 LIBRIS-ID:10637341
Library search

Abbas, Abul K.
Basic Immunology
Lichtman, Andrew H.

3rd ed. : Saunders, 2009
ISBN:978-1-4160-4688-2
Library search