



Faculty of Medicine

## LÄKD41, Pathogenesis, 30 credits

*Patogenes, 30 högskolepoäng*  
First Cycle / Grundnivå

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### Details of approval

The syllabus is an old version, approved by The Medical Degree Programme Board on 2019-09-18 and was last revised on 2022-09-14. . The revised syllabus applied from 2022-09-14. , spring semester 2023.

### General Information

The course constitutes Semester 4 of the Medical Programme.

*Language of instruction:* Swedish

Literature and teaching in English may be included.

*Main field of studies*

Medicine

*Depth of study relative to the degree requirements*

G2F, First cycle, has at least 60 credits in first-cycle course/s as entry requirements

### Learning outcomes

#### Knowledge and understanding

For a Pass on the course, the students shall be able to

- give an account of the different parts of a person-oriented patient-physician conversation
- describe normal psychological mechanisms and crisis reaction in the case of serious illness
- describe the importance of the interacting roles between different professions and the different communication cultures for interprofessional cooperation in healthcare
- give an account of legislation and ethical aspects with respect to autopsies and other measures after death
- give an account of the meaning of informed consent in treatment situations or in research contexts

- using medical terminology, explain reasons for function changes and diseases in all organs of the body and relate these to morphological, immunophenotypical, clinical chemical, clinical physiological and molecular genetic changes
- based on current knowledge, explain the aetiology, pathogenesis, symptoms, natural course, prognosis and complications of diseases
- describe the principles of the most common morphological, immunological, molecular genetic and clinical chemical methods and how the methods are used to establish a diagnosis
- explain the limitations of different diagnostic analyses from the standpoint of basic scientific methods and how these limitations influence interpretation of the analysis results
- explain how diagnostic analyses are evaluated, which statistical parameters are used in the evaluation and how these parameters can vary within and between different populations
- explain the pathophysiological mechanisms behind deviant findings in immunological, morphological, molecular genetic, clinical physiological and clinical chemical analyses
- explain how infections, inflammation and immunological mechanisms can cause the development of diseases and the following repair and healing process
- explain how cancers arise and progress, and describe principles of classification and grading of tumours
- discuss the incidence and prevalence of the most common and most serious diseases and explain how heredity, environmental factors and socio-epidemiological factors can affect these from a national and global perspective
- describe immunological aspects of blood group compatibility in transfusion and tissue compatibility in transplantation
- explain how common toxic substances can cause organ damage and
- explain the active mechanisms behind cancer drugs, anti-inflammatory and immunomodulating drugs, anticoagulants and thrombosis inhibitors.

### **Competence and skills**

For a Pass on the course, the students shall be able to

- conduct a patient-physician conversation, focusing on the patient's and physician's parts and give constructive feedback
- carry out physical examinations on healthy individuals regarding lymph nodes, thyroid gland and mouth and throat
- carry out capillary and venous sampling under supervision
- based on anamnesis, symptom description, examination findings or laboratory findings, identify possible underlying pathophysiological mechanisms and diseases and propose further laboratory investigations
- explain examination results from pathological-anatomical diagnosis (PAD) findings to a colleague and describe the significance of the findings for diagnosis, prognosis and possible further investigation
- search for research articles in several different medical databases in a structured way and based on advanced search techniques
- discuss ethical considerations in research studies based on fundamental research-ethical concepts and principles
- lead meetings in a way that utilises the expertise, and recognises the needs, of the group members
- from a leadership and staff member perspective, contribute actively and constructively to the group's knowledge development

### **Judgement and approach**

For a Pass on the course, the students shall be able to

- behave respectfully toward other students, lecturers and staff, and take active responsibility for, and reflect on, their learning and professional development and make a plan for their continued professional development
- reflect on the ethical and professional approach in interactions with patients in the final stage of life or suffering from serious illness as well as the handling of the body after death
- reflect on an individual's right to participate in decisions that are related to their own case as well as personal integrity aspects
- reflect on communication and teamwork based on the clinical situation and the study situation
- analyse and constructively contribute to a group's relational processes and work processes

## Course content

The course takes as its starting point the earlier courses in the Medical Programme regarding knowledge, abilities and evaluation skills as well as scientific and professional approach. The course introduces and deepens nosology relating to all organ systems and integrates laboratory-medical diagnostic methods. This includes pathology, clinical physiology, clinical immunology, transfusion medicine, clinical genetics and clinical chemistry. Regarding the diagnostic methods, a strong emphasis will be placed on understanding the pathophysiological reasons for deviant findings. The course also includes fundamental mechanisms behind the most common diagnostic methods and their limitations and how to validate a diagnostic method, which will be highlighted integrated with a scientific approach. The course highlights socio-epidemiological factors that affect health and illness.

The first part focuses on general mechanisms in disease development such as inflammation, immune reactions, the healing process and neoplasia. The second part of the course focuses on organ-specific nosology in which individual and global perspectives will be highlighted.

The course offers training and specialisation in conversational methods and medical psychology. Based on real healthcare situations, the importance of communication skills and leadership are discussed. The course includes the teaching of medical ethics and law related to clinical autopsies. The students are also given the opportunity to reflect on interactions with dying and deceased people. Training is given in examination methods, focusing on basic mental status, mouth and throat, thyroid gland and lymph nodes, while previously studied aspects of examination methods are repeated. In connection with clinically-integrated learning, there is a reflection on the possibilities and challenges of the medical profession.

The course is structured for progression to create possibilities for the students to develop both knowledge and skills – from general disease mechanisms to specific diseases in different organ systems. Furthermore, there is progression in the complexity of training to interpret an anamnesis and order appropriate laboratory sample tests on blood, urine, faeces, CSF and other bodily fluids, and in the interpretation of the results of these tests.

## Course design

The fundamental principle of the course is student-centred learning, in which the students take responsibility for their own knowledge development. To support the students' learning, the key knowledge content of the course is addressed through problem-based learning (PBL). The PBL components are also to help students to develop a scientific and professional approach. The PBL components are

supplemented by other learning components such as lectures, group exercises, seminars, activities via learning platforms and laboratory sessions/practical exercises. There will also be elements of clinically-integrated learning in the healthcare departments of the Southern healthcare region.

The following are compulsory components: PBL components, clinically-integrated learning, group exercises that concern professional development and other group activities specified in the course portfolio. Subject to a special decision by the examiner, a compulsory component may be replaced by a written make-up assignment. The examiner determines whether a student has achieved the relevant learning outcomes for the compulsory component, which is documented in the course portfolio.

## Assessment

Continuous and active participation in the compulsory PBL activities is a key element in the assessment of the course. The PBL activities are used to assess a basic professional approach and the ability to work constructively in groups. The PBL activities are therefore divided into two separate assessed components each worth 3 credits: - PBL - Basic Professional Approach and - PBL - Self-Knowledge and Constructive Work in Groups

Through the assessment method - PBL - Basic Professional Approach (3 credits), the student's basic professional approach is continuously assessed. The grade of Fail is given if the student demonstrates such serious deficiencies in the basic professional approach that this seriously counteracts the group's PBL activities. The grade of Fail can also be given if the student has a high non-attendance rate for PBL components.

If a student demonstrates such serious deficiencies in the basic professional approach that the group's PBL activities are seriously counteracted or if the student has a high non-attendance rate for PBL components, the examiner is to issue a warning to the student. If, despite this, the deficiencies remain, the examiner can immediately discontinue a student's PBL activities. When PBL activities are discontinued in this way, it means that the student is given the grade of Fail on the assessed component. - PBL - Basic Professional Approach and that a PBL instance is over. An individual study plan is then to be drawn up by the examiner and approved by the programme's student welfare committee. The individual study plan is to include an action plan that states what the student needs to do and demonstrate in order for the deficiencies to be considered rectified. The individual study plan is also to state details relating to the student's later readmission to studies. The fulfilment of the action plan is assessed by the examiner and is to be approved before the student can be readmitted to studies. If the student is awarded a grade of Fail for the assessed component - PBL - Basic Professional Approach, the student may not participate in the assessments for the course until the fulfilment of the action plan is approved and everything is in accordance with what is otherwise stated in the individual study plan.

The component - PBL - Self-Knowledge and Constructive Work in Groups (3 credits) involves assessment of the learning outcomes in the course syllabus relating to these abilities and approaches.

The knowledge content of the course is assessed through an exam on theory (15 credits). The exam is in the form of a multiple choice test, requiring the student to select the best answer. If the test is failed, it is to be retaken in full with the same exam design.

The course portfolio (9 credits) documents completed compulsory components, written assignments and passed practical components including a pass on participation in clinically-integrated learning. The course portfolio also documents

evaluation abilities and scientific and professional approach. The documentation covers both oral and written components. The course portfolio is graded in its entirety with a grade of Pass or Fail at the end of the course. In addition, the course portfolio is assessed in its entirety at specified junctures.

Decisions regarding the grade of Pass or Fail are made by the examiner.

The first opportunity for a student to participate in an examination is at the first regular opportunity after registering for the course.

**Number of assessment opportunities for PBL:**

Students who do not achieve a grade of Pass in the first PBL opportunity will have two more opportunities for assessment. The number of PBL opportunities is limited to three. Students who have failed three exams/PBL opportunities are not given an additional PBL opportunity.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

*Subcourses that are part of this course can be found in an appendix at the end of this document.*

**Grades**

Marking scale: Fail, Pass.

**Entry requirements**

Passed courses (all tests/components) up to and including Semester 2 of the Medical Programme.

Grade of Pass on *PBL - Basic Professional Approach* in the course Homeostasis (T3).

## Subcourses in LÄKD41, Pathogenesis

Applies from V20

- 2001 Theory Examination, 15,0 hp  
Grading scale: Fail, Pass
- 2002 Portfolio, 9,0 hp  
Grading scale: Fail, Pass
- 2003 PBL - Basic Professional Approach, 3,0 hp  
Grading scale: Fail, Pass
- 2004 PBL – Self-Knowledge and Constructive Group Work, 3,0 hp  
Grading scale: Fail, Pass