



**Karolinska
Institutet**

Course syllabus for

Hematology - Methodology and Diagnostic, 4.5 credits

Hematologi - metodik och diagnostik, 4.5 hp

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:

Autumn2008 , [Autumn2012](#) , [Autumn2013](#)

Course code	1BA018
Course name	Hematology - Methodology and Diagnostic
Credits	4.5 credits
Form of Education	Higher Education, study regulation 2007
Main field of study	Biomedical Laboratory Science
Level	G2 - First cycle 2
Grading scale	Pass with distinction, Pass, Fail
Department	Department of Laboratory Medicine
Decided by	Programnämnden för Biomedicinska analytikerprogrammet
Decision date	2008-05-19
Revised by	Programnämnden för Biomedicinska analytikerprogrammet
Last revision	2008-09-22
Course syllabus valid from	Autumn 2008

Specific entry requirements

In addition to the requirements set out in the programme syllabus of the Study Programme in Biomedical Laboratory Science, completed courses in the Structure, Function and Dysfunction of the Human Body 1 - 3, Laboratory diagnostics, Basic Laboratory Science, Thematic course: Acid/base and Energy, Biochemistry 1 and 2 and Cell Culture Methods, or the equivalent knowledge, is required.

Objectives

The aim of the course is that the student, on completion of the course, should be able to describe, as well as apply skills for light microscopic analysis of blood cells and bone marrow cells. The student should be able to determine changes of the blood cells in infections, anaemia and leukemia. Self-study of microscopical preparations is of great importance for the student learning to distinguish normal blood cells from pathological cells. On completion of the course, the student should be able to: - describe and explain the formation and function of blood cells (part 1) - give examples of anaemia, infections and hematologic malignancies with an emphasis on diagnostics (part 1) - demonstrate the importance of

hematologic analyses and examinations to determine diagnoses (part 1) - independent apply skills in light microscopic analysis to distinguish normal blood cells, as well as different blood cells, in macrocytic and microcytic anaemia, hematologic malignancies, and in bacterial infections/viral infections (part 2) - identify normal bone marrow cells in a microscope (part 2) - apply and reflect on ethical aspects (part 2) - search and choose relevant information in Hematology via Internet (part 2)

Content

The diagnostics section provides the following basic theoretical knowledge: Formation and function of the blood, factor regulation, cell maturity and differentiation. Synthesis and function of hemoglobin. Blood cell function: erythrocytes, platelets and leukocytes. Anaemia: classification, erythrocyte morphology and abnormalities in microcytic as well as macrocytic anaemia, and in hemolytic anaemia. Hematologic malignancies: terminology, aetiology, epidemiology, and classification of leukemia. The method section includes analysis in light microscopy of the following: Analysis of blood and bone marrow expressions: the identification of mature blood cells, as well as immature blood cells. Infections. Blood cell changes in infectious mononucleosis, malaria and bacterial infections. Anaemia: classification, erythrocyte morphology and abnormalities in microcytic as well as macrocytic anaemia, and in hemolytic anaemia. Hematologic malignancies: classification of leukemia. To provide an increased methodological view on different appearances of cells in normal and pathological conditions, searching and studying relevant information in Hematology through the use of IT is also included. The following two parts are included: Part 1: Haematology - Diagnostic Hematopoes 1.5 HE credits Physiology and pathology and hematologic diseases with an emphasis on diagnostics. Part 2: Haematology - Methodology 3 HE credits. Microscopical assessment of blood cells and bone marrow cells in different blood diseases.

Haematology - Diagnostic, 1.5 hp

Grading scale: VU

The diagnostics section provides the following basic theoretical knowledge:

- Formation and function of the blood, factor regulation, cell maturation and differentiation. Synthesis and function of hemoglobin.
- Blood cell function: erythrocytes, platelets and leukocytes.
- Anaemia: classification, erythrocyte morphology and abnormalities in microcytic as well as macrocytic anaemia, and hemolytic anaemia.
- Hematologic malignancies: terminology, aetiology, epidemiology, and classification of leukemia.

Haematology - Methodology, 3.0 hp

Grading scale: VU

The method section includes analysis in light microscopy of the following:

- Analysis of blood and bone marrow expressions: the identification of mature blood cells, as well as immature blood cells.
- Analysis of blood cell changes in infectious mononucleosis, malaria and bacterial infections.
- Anaemia: classification, erythrocyte morphology and abnormalities in microcytic as well as macrocytic anaemia, and hemolytic anaemia.
- Hematologic malignancies: classification of leukemia.

To provide an increased methodological view on different appearances of cells in normal and pathological conditions, searching and studying relevant scientific information in Hematology and studies of cases.

Teaching methods

The teaching is given as lectures, data search, seminars and teacher-supervised as well as independent studies in light microscopy of normal and pathological cells. The student should document laboratory work in a personal workbook.

Examination

Examination Part 1 Diagnostics is examined through a written examination. Part 2 Methodology is examined through a written examination in microscopical assessment of blood cells/bone marrow cells. All laboratory sessions and seminars are compulsory. In case of absence, an agreement concerning compensation is made between the student and the responsible teacher. 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 recommended 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 in the course is given. 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 regarded as an examination. If a student fails a laboratory session, the student has the opportunity to redo the laboratory session once.

Other directives

Course evaluation will be carried out in accordance with the guidelines established by the Board of Education.

Literature and other teaching aids

Carr, Jacqueline H.; Rodak, Bernadette F.

Clinical hematology atlas

2. ed. : St. Louis, Mo. : Elsevier Saunders, cop. 2004 - xiii, 256 p.
ISBN:0-7216-0395-5 (spiralh.) LIBRIS-ID:9865271

[Library search](#)

Color atlas of hematology : practical microscopic and clinical diagnosis

Theml, Harald; Diem, Heinz.; Haferlach, Torsten.; Theml, Harald

2nd rev. ed. : Stuttgart ; a New York : Thieme, c2004. - x, 198 p.
ISBN:3-13-673102-6 (GTV) LIBRIS-ID:9833639

[Library search](#)

Turgeon, Mary L.

Linné & Ringsrud's Clinical Laboratory Science.

5th edition. : St Louis, Missouri. : Mosby Inc. Elsevier Inc., 2007
ISBN:0323034128.

[Library search](#)

Laurells Klinisk kemi i praktisk medicin

Nilsson-Ehle, Peter; Ganrot, Per Olof; Laurell, Carl-Bertil

8., [rev. och utök.] uppl. /b Peter Nilsson-Ehle (red.) ; redaktionskommitté: Per Olof Ganrot ... : Lund : Studentlitteratur, 2003 - 723 s.

ISBN:91-44-00766-3 (inb.) LIBRIS-ID:9153885

[Library search](#)

Mehta, Atul B.

Haematology at a glance

Hoffbrand, A. Victor

Oxford : Blackwell Science, cop. 2000 - 122 p.

ISBN:0-632-04793-3 LIBRIS-ID:8293256

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