UNIVERSITY OF GOTHENBURG

INSTITUTE OF BIOMEDICINE

BMA102 Pathology of the Human Erythrocyte - Laboratory Diagnostics, 7.5 credits

Erytrocytmorfologi vid sjukdom - diagnostisk laboratoriemetodik , 7,5 högskolepoäng

Second Cycle

Confirmation

This course syllabus was confirmed by Institute of Biomedicine on 2014-05-09 and was last revised on 2022-09-14 to be valid from 2023-01-16, spring semester of 2023.

Field of education: Medicine 100%
Department: Institute of Biomedicine

Position in the educational system

The course is given as a freestanding course. The course can be included in a Master's (second cycle) degree.

Main field of studies	*Specialization*
Biomedical Laboratory Science	A1N, Second cycle, has only first-cycle course/s as entry requirements

Entry requirements

Bachelor's degree or professional degree equivalent to 180 credits in health care or medicine, of which at least 6 credits is in the field of hematology and hematologic methodology or equivalent. Swedish B/Swedish 3 or equivalent.

Learning outcomes

Upon successful completion of the course the student will be able to:

Knowledge and understanding

- describe hematopoiesis in the bone marrow and the normal functions of erythrocytes

- describe diseases and defects related to the erythrocyte

Competence and skills

- describe anomalies that are observed by microscopical inspection of blood and bone marrow smears

- calculate measured values, such as MCV, MCH, MCHC, RDW and EVF, and correlate these to morphological anomalies

- interpret and evaluate morphological anomalies, such as changes in size, shape, color, contents and artifacts of erythrocytes

- identify fetal erythrocytes

- perform common reference methods for cell counters

Judgement and approach

- demonstrate the ability to, in a professional way, focus on adequate issues and assessments

- demonstrate ability to identify ones own need of additional knowledge and take responsibility for continuing ones own professional development.

Course content

- Hematopoiesis in the bone marrow and the erythrocyte's normal function.
- Morphological anomalies that are observed by microscopical inspection of blood and bone marrow smears: Changes in size and shape, color, contents and artifacts of the erythrocyte.
- Morphological characteristics correlated to values, such as MCV, RDW, MCHC, MCH and EVF (hematocrit), obtained with cell counters.
- Identification of fetal erythrocytes.
- Reference methods to cell counters.
- Diseases and defects related to the erythrocyte: shortage of iron, vitamin B12 and other antimegaloblastic factors, hemoglobinopathies, talassemis, hemolysis with focus on none-immune hemolysis such as hereditary spherocytosis and erythroenzymopathies, bleeding, erytroblastopenia, aplastic anaemia, leukemia, hemochromatosis, myeloproliferative diseases, thrombotic thrombocytopenic purpura and other microangiopaties, myeloma, myelodysplastic syndrome that can give abnormal erythropoiesis, incorrect hemoglobin formation, injury on the erythrocyte outside the bone marrow, compensatory hyperplasia.

Form of teaching

The course consists mainly of online (distance) teaching with practical learning activities on campus. Teaching includes lectures, a seminar, group discussions and practical training. Microscopy exercise, seminar and demonstrations/study visits will be held on campus.

Language of instruction: Swedish
Teaching in English may occur.

Assessment

The course is examined by active participation in 4 group exercises and study visits, one seminar with case reports and an individual written assignment.

Not approved mandatory parts will be retaken accordning to instructions given in the current Study guide.

If a student who has twice received a failing grade for the same examination component wishes to change examiner ahead of the next examination session, such a request should be made to the department in writing and should be approved by the department unless there are special reasons to the contrary (Chapter 6 Section 22 of the Higher Education Ordinance).

If a student has received a recommendation from the University of Gothenburg for study support for students with disabilities, the examiner may, where it is compatible with the learning outcomes of the course and provided that no unreasonable resources are required, decide to allow the student to sit an adjusted exam or alternative form of assessment.

In the event that a course has ceased or undergone major changes, students are to be guaranteed at least three examination sessions (including the ordinary examination session) over a period of at least one year, but no more than two years after the course has ceased/been changed.

Grades

The grading scale comprises: Pass with Distinction (VG), Pass (G) and Fail (U).
For the grade Pass the student is required to participate actively in 4 group exercises and study visits and obtain the grade Pass (G) on the seminar with case reports and on the individual written assignment.

For the grade Pass with Distinction (VG) the student is required to obtain the grade VG on the written assignment and the grade Pass (G) on the rest of the examinations.

Course evaluation

Course evaluations are carried out by means of an anonymous web-based questionnaire and by oral evaluation during the final week of the course.

Additional information

Since the course includes digital parts, the student needs to have access to computer and internet.