BMA051, Methods in clinical chemistry, haematology and blood group serology, 7.5 ECTS credits
First cycle

1. Approval

The course syllabus is approved by the Committee for Study programmes in Medical Diagnostics and Techniques 2009-04-21, with revision 2010-08-16, following delegations according to the academy's regulation for labor and delegation.

The course syllabus applies from fall term 2010 on.

Education area: Medicine
Responsible department: Institute for Medicine
Main Area (major): biomedical laboratory science, SABLA
Specialization: G2F undergraduate level, has at least 60 ECTS credits course/courses at undergraduate level as prerequisites
Subject group: BL1, biomedical laboratory science

2. Placement

The course is part of the Programme in Biomedical Laboratory Science, 180 ECTS credits, laboratory medicine stream, and is taught during semester 5.

3. Prerequisites

Qualified for the course are students accepted to the Programme in Biomedical Laboratory Science, 180 ECTS credits, with a passing grade in courses taught during semester 1 – 4, laboratory medicine stream.

4. Content

Hemostasis analyses: primary hemostasis (thrombocytes, TPC, bleeding time), plasma coagulation (APTT), anticoagulant system (APC), fibrinolytic system (D-Dimer)

Kidney function analyses: osmolality, strip tests and urine sediment

Acid/base and fluid balance analyses: ion selective electrodes, potentiometry and amperometry, pH, pO2, Na/K, Ca
Measuring analytes with immunchemical methods: quantification of hormones, proteins, cardiac markers and drugs using nephelometry, turbidimetry, fluorescence polarisation immunoassay (FPIA), microparticle enzyme immunoassay (MEIA), electrochemiluminescence immunoassay (ECLIA), chemiluminescence microparticle immunoassay (CMIA), TRACE-technique.

**Point-of-care analyses:** glucose (HemoCue), C-reactive protein (CRP), troponin T and mononucleosis.

**Function tests:** glucose tolerance test, lactose tolerance test

**Haematology:** erythrocytes, leucocytes, thrombocytes, blood and bone marrow. Automated and manual cell counting, differential counting, flow cytometry, erythrocyte indices.

**Cerebrospinal fluid analyses:** cell counting, cytology, Abs415 (spectrophotometry), glucose, lactate, albumin quotient, IgG- and IgM index, isoelectric focusing

**Blood group serology:** ABO-, Rh typing, blood group antigen typing. Identification of erythrocyte antibodies, direct antiglobulin test (DAT), serological tests (blood typing and antibody screening (BAS-test) and recipient-donor tests (MG-test)). Hemagglutination, indirect antiglobulin test (IAT), enzymatic techniques.

5. **Goal**

Upon completed course the student is expected to be able to:

**Knowledge and understanding**

- explain the correlation between indication and different analyses and examinations
- explain the theoretical background to analyses and examinations

**Skills and capability**

- work according to work- and method descriptions, and make documentation according to regulations
- interpret the results of analyses and examinations
- assess the reliability of the results of analyses and examinations
- plan and independently perform point-of-care analyses
- orally present tasks related to the course
- report performed tasks in scientific writing

**Evaluation capability and approach**

- reflect upon the responsibilities of the biomedical analyst/medical laboratory technologist for the handling of patient specimens, analysis and releasing results

6. **Literature**

See separate list, appendix 1.

7. **Forms of evaluation**

To pass the student is required to partake in obligatory elements. These are group lessons, labs and presentations. Examination occurs through written lab reports and a practical exam.
The student retains the right to change examiner after having failed the same examination twice, if it is in effect possible. Such a request is placed at the institution and should be in writing.

The number of examination opportunities is limited to five.

8. Grading

The grading scale encompasses the grades *Underkänd* (U), i.e. Fail, *Godkänd* (G), i.e. Pass, and *Väl godkänd* (VG), i.e. Pass with Distinction.  
To receive VG for an entire course requires that the student has VG on both exams.

9. Course evaluation

Course evaluation is made in writing with help of Sahlgrenska Academy's general course evaluation, as well as orally in dialogue with the students. The course directing teacher arranges and makes an analysis of the course evaluations and provides suggestions for development of the course. Analysis and suggestions are reconnected to the students and published on Gothenburg University's Internet teaching platform (GUL), and presented at the next start of the course.
Appendix 1

Literature list BMA051, Methods in clinical chemistry, haematology and blood group serology, 15 ECTS credits

The literature list is approved by the Committee for Study programmes in Medical Diagnostics and Techniques 2010-08-16.


