Course syllabus for

Clinical Chemistry - methodology and diagnostics, 7.5 credits

Klinisk kemi - metodik och diagnostik, 7.5 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:
Spring2009 , Spring2013

Course code	1BA010
Course name	Clinical Chemistry - methodology and diagnostics
Credits	7.5 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	2008-10-22
Course syllabus valid from	Spring 2009

Specific entry requirements

General entry requirements for higher education and specific entry requirements as stated in the programme syllabus of the Study Programme in Biomedical Laboratory Science, and completed courses in Laboratory Diagnostics 9 HE credits, Basic Laboratory Science, 6 HE credits, Thematic course: Acid/base and Energy, 6 HE credits, Analytical chemistry and Biochemical methodology 7.5 HE credits, Instrumentation including Radio physics 7.5 HE credits, Biochemistry 1, 6 HE credits, Biochemistry 2, 6 HE credits and Cell and Molecular Biology, 6 HE credits or the equivalent knowledge.

Objectives

The course should give basic knowledge in methodology and diagnostics within Clinical Chemistry through theoretical and practical studies. On completion of the course, the student should be able to: - describe normal processes and pathological conditions within acid-base balance, the central nervous system, endocrine organs, kidneys, liver, heart, carbohydrate, lipid and protein metabolism and primary/humoral hemostasis and fibrinolysis - explain general terminology and concepts within pharmacology, and summarise pathological conditions within urea and porphyrin metabolism - describe the pre-analytical process with tubes and referral to different analytes specific for various diseases -

carry out vein and capillary sampling, count cells in a Bürker chamber and in urinary sediments in light and phase-contrast microscopes based on given security regulations, hygienic instructions and established quality requirements - document in a workbook; methods, interpretations and assessments of analysis results from a technical as well as medical point of view and reflect on ethical aspects - summarise the pre-analytical, analytical and post-analytical process for determining diagnosis - choose relevant information for the methodology of an analyte through the use of IT, reading lists and own study visits. In addition, review a scientific article with a new methodology for the analyte.

Content

During the diagnostics part, basic knowledge of normal acid-base balance with metabolic and respiratory changes in different organs is provided. Kidney physiology, tubular and glomerular diseases and infections in kidneys and the urinary tract are explained. The functional systems of the blood comprise primary/humoral hemostasis and fibrinolysis, and bleeding disorders, thrombosis diseases and treatment in the respective systems. A short repetition of the metabolism of carbohydrates, lipids and proteins is given to increase the understanding of different metabolic disorders. The normal and pathological conditions of the central nervous system, the endocrine organs, the liver and the heart, are described. Innate metabolic defects based on changes in urea and porphyrin metabolism, and general terminology within pharmacology are described, at a general level. Pathological conditions are summarised with specific analytes contributing to a correct diagnosis. During the methodology part, the pre-analytical, analytical and post-analytical phases of the analysis process are described, explained and discussed based on analysis methods relevant within clinical chemistry. Laboratory sessions are carried out, with capillary and venous sampling, qualitative urinary analysis and cell counting in a Bürker counting chamber in light and phase-contrast microscopes, based on a given hygiene and safety precautions and established quality requirements. The methodology part includes several seminars where patient cases are discussed and presented, orally. Methods, interpretations and assessments of analysis results from a technical as well as medical point of view, and reflections on ethical aspects are recorded in a workbook. As a subpart in the methodology, a group assignment is included about an analyte and its methodology. The students choose themselves relevant information via the use of IT, reading lists and own study visits, and review a scientific article motivating a new methodology for the analyte. The presentation takes place both orally and in writing. The following three parts are included: Part 1: Clinical Chemistry - Methodology and laboratory experiments, 3 HE credits Part 2: Clinical chemistry - Team work with methodology and critical evaluation of a scientific article, 1.5 HE credits Part 3: Clinical Chemistry - Diagnostics and theory, 3 HE credits

Clinical chemistry - Methodology and laboratory experiments, 3.0 hp

Grading scale: VU

Clinical chemistry - Team work with methodology and criti..., 1.5 hp

Grading scale: VU

Clinical chemistry - Diagnostics and theory, 3.0 hp

Grading scale: VU

Teaching methods

Lectures, seminars with an oral presentation of a patient case, laboratory sessions, study visits and a group work of an analyte methodology and a review of a scientific article with a focus on a re-methodology. The student should document laboratory work in a personal workbook.

Examination

The course is examined through a written examination in methodology and diagnostics, and an oral and written presentation of an analyte and of a scientific article with an emphasis on methodology. All laboratory sessions and oral presentations are compulsory. In case of absence, an agreement is made between the student and the responsible teacher concerning compensation. 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. However, at most 6 examinations.

Other directives

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

Literature and other teaching aids

Kjellén, E; Bjellerup, P; von Döbeln, U, m fl.

Kompendium i Klinisk kemi - metodik och diagnostik

Stockholm : 2008

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

Ringsrud, Karen Munson; Linné, Jean Jorgenson

Linné & Ringsrud's Clinical laboratory science : the basics and routine techniques

Turgeon, Mary L.

5. ed. /b [editor] Mary L. Turgeon : St. Louis, Mo. : Mosby Elsevier, cop. 2007 - xiv, 608 s.

ISBN:0-323-03412-8 LIBRIS-ID:10255799

Library search