Course syllabus for

Chemistry of the human body, 7.5 credits

Människokroppens kemi, 7.5 hp
This course syllabus is valid from autumn 2008.
Please note that the course syllabus is available in the following versions:
Autumn2007 , Autumn2008 , Autumn2009 , Autumn2011 , Autumn2013 , Spring2015

Course code	2TL007
Course name	Chemistry of the human body
Credits	7.5 credits
Form of Education	Higher Education, study regulation 2007
Main field of study	Not applicable
Level	GX - First cycle
Grading scale	Pass, Fail
Department	Department of Medical Biochemistry and Biophysics
Decided by	Programnämnden för tandläkarprogrammet
Decision date	2007-05-14
Revised by	Programnämnden för tandläkarprogrammet
Last revision	2008-09-08
Course syllabus valid from	Autumn 2008

Specific entry requirements

Standardised admission requirements E.1.

Objectives

Knowledge and understanding are described, at a general level, in the following learning outcomes. The student should in writing and orally be able to: account for how molecules are built-up and understand their structural formulas. account for and make calculations of different concentration displays. account for and calculate how acids and bases function. understand and account for classification of body water and its contents in different fluid compartments. understand and account for the fundamental features of the construction of the molecules of the cell and the basic intermediary metabolism. understand and describe how nutrients are handled in the digestive tract. account for some of the functions of the blood. account for the inorganic and organic chemistry of the saliva, the biochemical reactions in plaque and the chemistry of the hard dental tissues.

Content

The course is initiated with an overview/repetition of definitions and general concepts. In this, the structure of atoms and molecules, and the different types of chemical binding are included. Different ways to state concentration are repeated/described. Strong emphasis is placed on acid-base equilibria and buffer systems. In these contexts, the water solutions of the human body, their contents of buffers and other dissolved substances, are described. The major part of the course is devoted to medical chemistry. This includes: chemical structure and function of carbohydrates, lipids and proteins; enzymology; digestion and absorption of different substance groups in the digestive tract; metabolism of carbohydrates, lipids, amino acids; cell energy production; effects of some central hormones on metabolism and calcium; transport of oxygen and carbon dioxide in blood; plasma proteins; hemostasis. Integrated with the above contents, oral biochemistry, that is biochemistry specific to the oral cavity, is taught. In this part, the inorganic and organic chemistry of the saliva, with an emphasis on its ability to protect the oral cavity is included (inorganic ions, glycoproteins, pH buffering), the chemistry of hard dental tissues with an emphasis on biological calcium-phosphates and the biochemistry of the plaque.

Teaching methods

To achieve the learning outcomes, the teaching is given in several different forms. Lectures dominate, but seminars, individual studies with teacher assistence, laboratory sessions and computer exercises are also included. Laboratory sessions, seminars with laboratory follow-up, the first laboratory lecture which reviews safety in the course laboratory and self-evaluation are compulsory.

Examination

Examination is carried out through written examination. Attendance is required at compulsory parts of the course, see above. Missed examinations should be compensated by a make-up assignment from the course provider. If the student's examination has not passed, the student gets 2 more examination opportunities. After that, the student is recommended to retake the course and is given 3 more examination opportunities. If the student has not passed after 6 trials, he/she has no more admission to the course. (HF chapter 6, section 11 a).

Transitional provisions

If the course is closed down or undergoes major changes, examination under a previous literature list and learning outcomes will be offered no more than one academic year after the implementation of the revision/close-down.

Other directives

Course evaluation is carried out according to the guidelines established by the Board of education. The course substitutes TLOA52

Literature and other teaching aids

Medical biochemistry

Baynes, John W.; Dominiczak, Marek H.

2., [rev.] ed. : Philadelphia, Pa. : Elsevier Mosby, 2005 - xii, 693 s.

ISBN:0-7234-3341-0 LIBRIS-ID:9756430

Library search

Erlanson-Albertsson, Charlotte; Gullberg, Urban

Cellbiologi

2., [rev. och uppdaterade] uppl. : Lund : Studentlitteratur, 2007 - 350 s.

ISBN:978-91-44-04738-6 LIBRIS-ID:10532220
Library search

Champe, Pamela C.; Harvey, Richard A.; Ferrier, Denise R.
Biochemistry

3. ed. : Philadelphia : Lippincott/Williams & Wilkins, cop. 2005 - x, 534 p.
ISBN:0-7817-2265-9 LIBRIS-ID:9607456
Library search