Course syllabus for

Chemistry of the human body, 7.5 credits

Människokroppens kemi, 7.5 hp
This course syllabus is valid from spring 2015.
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	Education committee DENTMED
Last revision	2019-04-15
Course syllabus valid from	Spring 2015

Specific entry requirements

Biology 2, Physics 2, Chemistry 2, Mathematics 4 (field specific entry requirements A13). Or: Biology B, Physics B, Chemistry B, Mathematics D (field specific entry requirements 13).

Objectives

Knowledge and understanding are described at a general level in the following expected learning outcomes. The student should, in writing as well as orally, be able to account for:

- how molecules are built-up and understand their structural formulas.
- contents and distribution of the water solutions of the human body (the intracellular and extracellular fluids).
- the properties of acids and bases, and how buffers function.
- the fundamental features in the structure of the molecules of the cell and the basic intermediary metabolism.
- how nutrients are handled in the digestive tract.
- some of the functions of the blood.

- the inorganic and organic chemistry of the saliva, the biochemical reactions in a plaque and the chemistry of the hard dental tissues.

Content

The course starts with an overview/repetition of definitions and general concepts. This comprises: the structure of atoms and molecules including the different forms of chemical bonds. Different ways to state concentration will be repeated/described. Strong emphasis is placed on acid-base equilibria and buffer systems. In this context, the water solutions of the human body, their contents of buffer components and other dissolved substances are described.

The major part of the course is devoted to medical chemistry and includes: chemical structure and function for carbohydrates, lipids, proteins and nucleic acids; enzymology; digestion and absorption of different substance groups in the digestive tract; metabolism of carbohydrates, lipids, amino acids; the energy production in the cell; signal transduction; effects of some central hormones on metabolism and calcium flux; transport of oxygen and carbon dioxide in blood; plasma proteins; hemostasis.

Integrated with the above contents, oral biochemistry is taught (biochemistry specific to the oral cavity). In this part, the inorganic and organic chemistry of the saliva with an emphasis on its ability to protect the oral cavity (inorganic ions, glycoproteins, pH buffering), the chemistry of hard dental tissues with an emphasis on biological calcium-phosphates, and the biochemistry of the plaque are included.

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 with laboratory follow-up. The first laboratory lecture when safety in the course laboratory is reviewed, and the self-evaluations are compulsory.

The course coordinator decides whether, and if so how, absence from compulsory course elements can be made up. Study results cannot be reported until the student has participated in compulsory course elements or compensated for any absence in accordance with instructions from the course coordinator. Absence from a compulsory course element could mean that the student can not retake the element until the next time the course is offered.

The self-evaluations are good as a preparation for examination. Teaching in English can occur.

Examination

Examination is carried out through a written test. It is also required that compulsory parts of the course are passed (see above, instruction).

Limitation of the number of examination occasions:
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, the student will not be given another admission to the course (HF chapter 6 11a §).

Transitional provisions

The course has been cancelled and was offered for the last time in the autumn semester of 2018. Examination will be provided until the autumn of 2019 for students who have not completed the course.

Other directives

A course evaluation is carried out according to the guidelines established by the Board of education.

Literature and other teaching aids

Rådmark och Wetterholm

Kompendium: Syror och baser. : Vattenlösningars egenskaper, osmos och tonicitet, elektrolyter

2008

Ferrier, Denise R.

Biochemistry

6. ed. : Lippincott Williams and Wilkins, 2013
ISBN:978-1-4511-7562-2 LIBRIS-ID:13993817
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