Course syllabus for

Medical Biochemistry, 10 credits

Medicinsk biokemi, 10 hp
This course syllabus is valid from spring 2009.
Please note that the course syllabus is available in the following versions:
Spring2008 , Spring2009 , Spring2012 , Spring2014

Course code	1BI002
Course name	Medical Biochemistry
Credits	10 credits
Form of Education	Higher Education, study regulation 2007
Main field of study	Biomedicine
Level	G2 - First cycle 2
Grading scale	Excellent, Very good, Good, Satisfactory, Sufficient, Fail, Fail
Department	Department of Medical Biochemistry and Biophysics
Decided by	Programnämnden för biomedicinprogrammet
Decision date	2007-06-19
Revised by	Programnämnd 7
Last revision	2010-01-07
Course syllabus valid from	Spring 2009

Specific entry requirements

At least the grade E in the course Introduction to biomedicine (1BI001) or the equivalent knowledge.

Objectives

After the course, the student should be able to account for the independent cell's and all man's biochemical function and renewal of natural products for biosyntheses and extraction and storing of energy including the enzymre regulation of the processes be able to predict the effect on the metabolism of influence on independent reaction steps through the pharmaceuticals or genetic variation be able to explain connection between changes at molecular level and metabolic changes at large national diseases as diabetes, atherosclerosis and alcoholism and for different physiological conditions as under - and övernäring be able to search forward relevant original-, översikts- och kurslitteratur concerning issues around medical biochemistry and from these bring information for problem-solving experimental design and for compilations be able to orally and in written form present own results and compilations of published results within medical biochemistry be able to discuss method choice for biochemical laboratory work

Content

The course is divided in the following parts: Part 1. Basic metabolism, 3 credits (Basic metabolism) Regulation of enzyme activity. The transduction system of the cell from a biochemical point of view. Digestion and absorption of nutrients. Glycolysis and gluconeogenesis, glycogen, the citric acid cycle, and the hexose monophosphate shunt. The respiratory chain. Lipid metabolism and lipoproteins. Cholesterol and atherosclerosis. Oxidative stress. Biles. Ketone bodies. Phospholipids. Prostaglandins and leukotrienes. Steroid hormones. Part 2. Biochemical laboratory methods, 2 credits (Biochemical laboratory methods) Studies of metabolism in human cells and application of chromatographic methods. Part 3. Integrated metabolism, 5 credits (Integrated metabolism) Amino acid metabolism, urea, those carbon pool, creatine phosphate. Nucleotide metabolism. Alcohol, metabolism and effects. The integration of the metabolism and hormonal regulation. The part also consists of an integrating final examination.

Basal metabolism, 3.0 hp

Grading scale: GU

Regulation of enzyme activity, the signal transduction system of the cell, digestion and absorption of nutrients, carbohydrate metabolism – including energy conversions in the cell, lipid metabolism, ketone bodies and oxidative stress.

Biochemical laboratory methods, 2.0 hp

Grading scale: GU

Studies of cellular metabolism and in connection with this, application of chromatographic methods.

Integrated metabolism, 5.0 hp

Grading scale: AF

Amino acid metabolism including urea, the one carbon pool and creatine phosphate, nucleotide metabolism and alcohol metabolism. Integration of metabolism and hormonal regulation.

Teaching methods

The teaching includes lectures, laboratory sessions, group tuition (seminars) and project works. It is to a large extent directed towards the understanding of biochemical contexts. The project work implies advanced studies in a group with an emphasis on own work and literature studies.

Examination

Part 1 is graded Fail/Pass and is examined through an oral test and an oral presentation of a project work. Part 2 is graded Fail/Pass and is examined through observations of the student's laboratory skills and through written laboratory reports. Part 3 is graded F/Fx/E/D/C/B/A and is examined through a written examination. To be permitted to participate in final examination, the test must be approved. For the examinations, two make-up sessions are provided before the written final examination. The course grade is based on the grade of part 3. Grading criteria are announced at the beginning of the course. Grades are assigned by examiner. Compulsory participation Laboratory sessions and project work are compulsory, as well as presentations and lectures linked to these part. The course director determines if it is possible and if so how the student can compensate possible absence from compulsory parts. Before the student has participated in compulsory parts, or compensated for absence in accordance with the instructions of the course coordinator, the current part is not registered in LADOK (student registry). 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, on completion the course, participate in two more examinations. If the student has failed six examinations/tests, no additional examination or new admission in the course is given. As examination sessions, those times are counted when the student participated in one and the same test. Submission of a blank exam is counted as examination attempt. An examination for which the student registered but did not use, will not count as an examination.

Transitional provisions

Irrespective of changes in the contents of the course and how it is examined should it after each course date be offered total at least six occasions for test and written final examination during a period of at least two years from the course end.

Other directives

The teaching is given in Swedish and English. Course evaluation will be carried out in accordance with the guidelines established by the Board of Education. Course council meeting is held with the course coordinator and student representatives.

Literature and other teaching aids

Berg, Jeremy Mark; Tymoczko, John L.; Stryer, Lubert

Biochemistry

6. ed. : New York, N.Y. : Freeman, cop. 2007 - xxxv, 1026, [86] s.

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