GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2016-2017

Advanced Clinical Chemistry (J000094)

Course size (nominal values; actual values may depend on programme)

Credits	8.0	Study time	240 h	Contact hrs	45.0 h

Course offerings and teaching methods in academic year 2018-2019

A (year)	Dutch	guided self-study	28.75 h
		project	5.0 h
		lecture	10.0 h

Lecturers in academic year 2018-2019

Van Bocxlaer, Jan	FW03	lecturer-in-charge

Offered in the following programmes in 2018-2019	crdts	offering
Master of Science in Laboratory Medicine	8	A

Teaching languages

Dutch

Keywords

Clinical chemistry, bio-analysis, medical biochemistry, medical laboratory technology

Position of the course

Laboratory tests for screening, as a medical diagnosis aid and for prognosis monitoring have become invaluable tools in medical practice. The aim of this course is to provide an advanced education in interpretative clinical chemistry. The course is part of the advanced training program for clinical chemists and has the objective of providing an in-depth understanding of the chemical, bio-analytical aspects of this discipline.
Based on the fundamental knowledge of biochemistry, medical biochemistry and physiology, the course offers the student an overview of various biochemical markers which are used nowadays in the routine clinical practice, their analytical determination, biochemical rationale and correlation with the specific disease or disorder.

Contents

The course contains information concerning the proper selection of samples and analytical tests, the various analytical test principles and their implementation, some associated aspects of quality control, and the interpretation of the resulting data with respect to a medical diagnosis or clinical picture evolution. According to the various major themes in medical biochemistry and relevant problems from medical pathology, the clinical routine practice and its fundamental background are addressed in a number of different chapters. Some examples are: disorders of the lipoprotein metabolism, myocardial infarction, acid-base disorders, enzymes and liver function tests, water and salt balance, tumour markers, etc. In each case the (patho)biochemical backgrounds, the bioanalytical determination, as well as the clinical-medical interpretation of the presented quantitative and/or qualitative data are treated.

Initial competences

Final competences of Master of Pharmaceutical Care or Master of Drug Development or having acquired the corresponding competences in another way.
To have adequate knowledge, at the level of a pharmacist, of medical biochemistry, the physiology of man and its related patho-physiology, the (bio-)analytical chemistry, the principles of bio-statistical data treatment, as well as ethics and deontology. Also starting from the initial formation of pharmacists, having at one’s disposal such competences and practical knowledge as: the chemical analysis of endogenous and exogenous chemical substances; the ability to track down scientific data in dedicated professional literature, to be able to critically analyse and summarize such scientific data; to be able to write down scientific data and also present such data to a public of

peers; have adequate communication skills towards other members of the medical corps. The candidate also holds the following attitudes: a critical, scientific attitude; being open for new points of view; bear one's own responsibility for continued scientific formation; be able to work in an orderly and accurate way. To that end, the candidate has successfully completed the following courses: Medical biochemistry, General and instrumental analytical chemistry, Toxicology, Human anatomy and general physiology, Physiology and pathophysiology of body systems, Pharmacokinetics, Statistics and pharmaceutical data analysis, Immunology, and Pathology, or having acquired the intended competences on a different but equally functional way.

Final competences

1 To have a profound understanding of the various aspects of clinical chemistry and clinical biology.
2 To have an understanding of the professional aspects of clinical biology.
3 To have the necessary knowledge and competence to conduct analyses in the field of clinical chemistry.
4 To know the various techniques used in the field of clinical chemistry.
5 To interpret a set of clinical-chemical research results and develop a diagnostic vision based upon these data.
6 To produce, within the framework of the professional practices of clinical biology, clinical-chemical analysis results which comply to the present day quality parameters.
7 To function in a quality-controlled environment, as well as being able to maintain this environment.

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Guided self-study, lecture, project

Extra information on the teaching methods

Tutorials, exercises, thematic discussion sessions, presentations. Some of the course sessions can eventually be tought by a guest lecturer with a profesional background.

Learning materials and price

The course uses English text books, scientific publications, clinical cases, and computer aided education.

References

Course content-related study coaching

Evaluation methods

continuous assessment

Examination methods in case of periodic evaluation during the first examination period

Examination methods in case of periodic evaluation during the second examination period

Examination methods in case of permanent evaluation

Participation, assignment

Possibilities of retake in case of permanent evaluation

examination during the second examination period is not possible

Extra information on the examination methods

Non-periodic (frequency: every fortnight) evaluation. The non-periodic evaluation consists of the preparation and oral presentation (in the presence of the lecturer and the other students) of a course theme (= a set of clinical-biological tests belonging to a certain pathology, and interpretation) or a clinical case, or highlighting the recent scientific literature concerning the days' subject. There is no second examination chance for the permanent evaluation. Participation and interaction during the courses is equally taken into consideration.

Calculation of the examination mark