Course Specifications
From the academic year 2015-2016 up to and including the
Biotechnological Techniques in Medical Diagnostics (C002697)

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

<table>
<thead>
<tr>
<th>Credits</th>
<th>Study time</th>
<th>Contact hrs</th>
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<tbody>
<tr>
<td>3.0</td>
<td>80 h</td>
<td>25.0 h</td>
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Course offerings and teaching methods in academic year 2018-2019

- B (semester 2) English lecture 25.0 h

Lecturers in academic year 2018-2019

- Deforce, Dieter FW01 lecturer-in-charge

Offered in the following programmes in 2018-2019
credits offering

- Master of Science in Biochemistry and Biotechnology 3 B
- Exchange programme in Biochemistry and Biotechnology (master's level) 3 B

Teaching languages

- English

Keywords

- Diagnostics, DNA, genetic analysis, immunologic assays

Position of the course

The goal of this course is to provide the student with a profound insight and knowledge pertaining the broad application of biotechnological techniques in the field of medical diagnostics, more specifically PCR, automated DNA sequencing, gene expression analysis, micro-array and derivatives thereof used in diagnostics. In addition will this course provide the student a prospective view of the possible applications and the applications in development of biotechnological medical diagnostics this by means of recent literature.

This course contributes to the following program competencies: MA WE.BB.1.1, MA WE.BB.1.2, MA WE.BB.1.4, MA WE.BB.2.1, MA WE.BB.2.2, MA WE.BB.2.6, MA WE.BB.3.2, MA WE.BB.5.1, MA WE.BB.6.3

Contents

In the first section all biotechnological techniques used, or which could be used in medical diagnostics will be explained in depth both technically and theoretically. In the second section an overview will be given of the numerous medical diagnosis which can be performed by using one or more of the biotechnological techniques discussed in the first section. The advantages and the disadvantages of these biotechnological diagnostics compared to other diagnostic techniques will be discussed. In the third section the international regulatory aspects, quality control and the necessary validations pertaining these biotechnological medical diagnostic products and the difficulties in this area will be discussed.

Initial competences

- Previous education in the life sciences equivalent with the level of Master of Science in Biochemistry and Biotechnology.

Final competences

1. Profound knowledge about the biotechnological techniques used in medical diagnostics.
2. Knowing the principles and the pitfalls, being able to critically interpret the data of such analysis.
3. In depth knowledge of the PCR, automated DNA sequencing, gene expression analysis, micro-array and derivatives thereof used in diagnostics.

Conditions for credit contract

(Approved)
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
Lecture

Learning materials and price
The student will have a syllabus, which will also be published on the internet, at his disposition in addition to scientific literature and scientific information of biotechnological medical diagnostic kits. Slides of the lessons are also available on the internet:
http://allserv.ugent.be/~ddeforce/English/courses.htm

Cost: 10 EUR

References
http://allserv.ugent.be/~ddeforce/English/courses.htm

Course content-related study coaching
Prof. Deforce is the contact person for coaching concerning course related subjects.

Evaluation methods
end-of-term evaluation

Examination methods in case of periodic evaluation during the first examination period
Written examination with open questions

Examination methods in case of periodic evaluation during the second examination period
Written examination with open questions

Examination methods in case of permanent evaluation
Possibilities of retake in case of permanent evaluation
not applicable

Calculation of the examination mark
written exam: 100%

(Approved)