Course Specifications
Valid in the academic year 2018-2019

Integrated Practicum: Basic Analysis of Microbial and Eukaryotic Cells (C003364)

Course size  
Credits 3.0  
Study time 75 h  
Contact hrs 58.0 h

Course offerings and teaching methods in academic year 2018-2019
A (semester 1)  
Dutch practicum  
55.0 h  
microteaching 2.5 h

Lecturers in academic year 2018-2019
Vandamme, Peter  
WE10 lecturer-in-charge  
Berx, Geert  
WE14 co-lecturer  
Peeters, Charlotte  
WE10 co-lecturer  
Van Cauwenberghe, Caroline  
WE14 co-lecturer

Offered in the following programmes in 2018-2019
Bachelor of Science in Biochemistry and Biotechnology  
crds 3  
offering A

Teaching languages
Dutch

Keywords
Microscopy, dissection, sterile culture of microorganisms and eukaryotic cell lines, histology

Position of the course
During this integrated practical course, students learn basic techniques for the study of (micro)organisms at a cellular and macromorphological level. To this end various analytical methods are applied to both bacterial as well as eukaryotic samples (including strains, cell lines, tissue sections and plants). In addition, scientific communication skills are practiced, both written and orally.

Contents
During the exercises students learn to prepare culture media and to isolate and purify bacteria from different types of samples. They learn to work in axenic conditions and describe bacteria through their cell and colony morphology and phenotypic tests. The students learn to recognize the microscopic structure of different types of tissues and perform a dissection of a mouse. The use of advanced equipment and techniques for microscopy and the cultivation of eukaryotic cell lines and plants is demonstrated in the lecturer’s research labs. De students independently collect information on the structure and function of a particular organ and present this information by means of a PowerPoint presentation.

Initial competences
Registration for this course is only possible with simultaneous registration for the courses ‘algemene microbiologie’ and ‘algemene celbiologie’, or if the latter courses were successfully attended and evaluated earlier. The students have a basic knowledge of organic chemistry, structural biochemistry and cell biology.

Final competences
1 The student knows the basic methods to isolate micro-organisms from different types of samples and how to preserve them as axenic cultures.
2 The student is capable of describing a bacterial culture through its cell and colony morphology and its phenotypic characteristics.
3 The student takes into account the characteristics of potentially dangerous chemicals and biological agents when performing scientific experiments and minimizes the risk

(Approved)
for man and environment.

4 The student knows different types of microscopes and can use basic types of instruments for the characterization of bacteria, plants and tissue cultures.

5 The student can collect scientific information on a chosen topic, incorporate and present this information in a report and by means of a PowerPoint presentation.

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

Microteaching, practicum

Extra information on the teaching methods

Microteaching: students independently seek information regarding the function of a specific organ and present this information.

Practical classes: students perform experiments individually or in groups, conform with instructions. Introductory lectures by means PowerPoint presentations will clarify the experiments and the expectations.

Learning materials and price

Different types of information will be available on the Minerva web site. This includes all PowerPoint presentations used, and the following books: ‘Basisanalyse van microbiële en eukaryote cellen’ and ‘Methoden en technieken voor de analyse en de functionele studie van biomoleculen’. Also the book ‘Experimentele vaardigheden - Deel 1: Veiligheid, algemene, chemische en microbiologische vaardigheden (ISBN 9789038216119) will be made available for the price of 22€.

References

Course content-related study coaching

Students can consult supervisors during the practical classes. A feedback session will be organized after submission of the reports but before the exam.

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

Written examination, oral examination, assignment, skills test, job performance assessment, report

Possibilities of retake in case of permanent evaluation

examination during the second examination period is possible in modified form

Extra information on the examination methods

Permanent evaluation (no second opportunity during 2nd exam period): all techniques and attitudes are evaluated on a permanent basis. Students are interrogated during the practicum with regards to their activities and the experiments they are doing.

The practicum exam (including a practical test) consists of two parts. The first part is an interrogation during the histology exercises and encompasses the theoretical background of the exercises. The second part is an exam at the end of the course which evaluates the knowledge of the student regarding practical aspects of their experiments. This includes practical exercises and evaluates if the students can interpret test results appropriately.

The practicum report: the report is evaluated on the basis of completeness, lay-out, results obtained and the discussion thereof.

The PowerPoint presentation is evaluated on the basis of lay-out, scientific content and presentation technique.

Calculation of the examination mark

Absence that is not justified (medical, legam) implies that the student fails for the entire course. Not submitting reports in time or a score of <40% on at least one of the four evaluation components will result in a non-deliberable score.

Practicum exam: 7/20
Practicum report: 7/20

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