

COURSE DETAIL

MOLECULAR BASIS OF BACTERIAL INFECTIONS

Country

Netherlands

Host Institution

Utrecht University

Program(s)

Utrecht University

UCEAP Course Level

Upper Division

UCEAP Subject Area(s)

Biological Sciences

UCEAP Course Number

151

UCEAP Course Suffix**UCEAP Official Title**

MOLECULAR BASIS OF BACTERIAL INFECTIONS

UCEAP Transcript Title

BACTERIAL INFECTNS

UCEAP Quarter Units

6.00

UCEAP Semester Units

4.00

Course Description

Within this course the bacterium has a central role. The course discusses the molecular build-up of several different types of bacteria and the ways this make-up enables these bacteria to cause infections. Plenary lectures are given by experts active in diverse fields of microbiological research.

Furthermore, the focus is on giving an overview on experimental techniques in molecular microbiology. A large part of this course consists of practical work in which the students perform their own research in a fundamental research setting.

The course discusses topics including the molecular and structural features of bacteria (including cell wall, genome, secretion systems); the diversity within bacterial species based on those characteristics; the process of a bacterial infection, from entry, colonization/infection, to pathogenesis; bacterial virulence and survival strategies of bacteria; the molecular principles of immune evasion strategies employed by bacteria; the molecular action of bacterial toxins; the acquisition and molecular basis of antibiotic resistance and alternative treatment options (such as antibody therapies); and when to use, and how to interpret, the most important modern techniques within the field of microbiology (CRISPR-Cas, Flow Cytometry, Imaging, Next Generation Sequencing, Protein Structure, and Proteomics). The course requires students to have general knowledge on molecular cell biology as a prerequisite.

Language(s) of Instruction

English

Host Institution Course Number

BMW33617

Host Institution Course Title

MOLECULAR BASIS OF BACTERIAL INFECTIONS

Host Institution Campus

Host Institution Faculty

Medicine

Host Institution Degree

Host Institution Department

Biomedical Sciences

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