

COURSE DETAIL

BIOLOGICAL PHYSICS

Country

Netherlands

Host Institution

Utrecht University

Program(s)

Utrecht University

UCEAP Course Level

Upper Division

UCEAP Subject Area(s)

Physics

UCEAP Course Number

102

UCEAP Course Suffix**UCEAP Official Title**

BIOLOGICAL PHYSICS

UCEAP Transcript Title

BIOLOGICAL PHYSICS

UCEAP Quarter Units

6.00

UCEAP Semester Units

4.00

Course Description

This course examines the fundamental laws of physics to biological problems. This concept-context course is structured around two weekly plenary lectures and two tutorials during which relevant biological case studies and examples are used to introduce the fundamental physical concepts essential in the study of biological phenomena. For instance, classical mechanics is applied to investigate oscillations important for the perception of sound, continuum mechanics to describe the flow of developing tissue, and statistical physics to investigate random motion of molecules. Although the language of physics is mathematics, the emphasis of the course is on physics, not mathematics. Students are introduced to the fundamental tools for quantitative descriptions, study different branches of physics, and learn to apply them to biological problems. Throughout the course, students engage with the material in a diverse set of assignments and computational exercises. This learning-by-doing strategy teaches students how to use considerations based on fundamental physical principles to develop a quantitative intuition about biological systems. Individual e-assessments enable students and teachers to monitor knowledge and understanding as the course progresses.

Language(s) of Instruction

English

Host Institution Course Number

MBLS-106

Host Institution Course Title

BIOLOGICAL PHYSICS

Host Institution Campus

Host Institution Faculty

Host Institution Degree

Host Institution Department

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